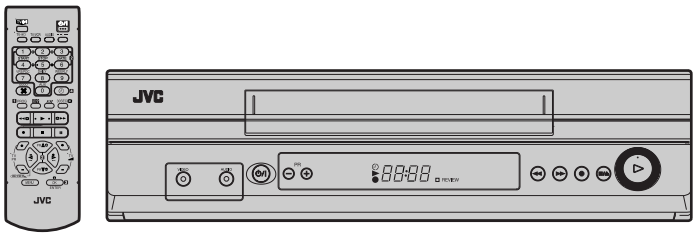
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-P57AG, HR-P58AG, HR-V200AG, HR-V207AG, HR-V400AG



VHS PAL NTSC

SQPB

For disassembling and assembling of MECHANISM ASSEMBLY, refer to the SERVICE MANUAL No.86700(MECHANISM ASSEMBLY).

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-V200AA, HR-V200AG, HR-V201AS, HR-V207AG, HR-V400AG, HR-V401AS.)*

GENERAL

Power requirement	
Rating	: AC110 V–240 V∿, 50 Hz/60Hz
Operating	: AC90 V–260 V∿, 50 Hz/60Hz
Power consumption	: 14 W
Temperature	
Operating	: 5 °C to 40 °C
Storage	: –20 °C to 60 °C
Operating position	: Horizontal only
Dimensions (WxHxD)	: 360 mm x 94 mm x 265 mm
Weight	: 2.7 kg
Format	: VHS standard
Maximum recording time	
(SP)	: 240 min. with E-240 video cassette (PAL/MESECAM)
	: 160 min. with T-160 video cassette (NTSC)
(LP)	: 480 min. with E-240 video cassette (PAL/MESECAM)
(EP)	: 480 min. with T-160 video cassette (NTSC)

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625lines 50 fields
	: NTSC colour and EIA monochrome signals, 525 lines/60 fields
Recording system	: HR-V400AG/V401AS DA-4 (Double Azimuth) head helical scan system
	: HR-V207AG/V200AG/V201AS/V200AA Rotary 2 head helical scan system
Signal-to-noise ratio	: 45dB
Horizontal resolution	: 250 lines (PAL/MESECAM)
	: 220lines (NTSC)
Frequency range	: 70Hz to 10,000 Hz
Input/Output	: HR-V400AG/V401AS RCA connectors (IN x2, OUTx1)
	: HR-V207AG/V200AG/V201AS/V200AA RCA connectors (IN x1, OUTx1)

TUNER/TIMER

TV channel storage capacity	: 99 positions (+AUX position)
Tuning system	:Frequency synthesized tuner
Channel coverage	
VHF	: (Low) 42 MHz – 175 MHz (High)175 MHz – 470 MHz
UHF	: 470 MHz – 870 MHz
Aerial output	: UHF channels (Adjustable E28 – E60)
Memory backup time	: Approx. 10 min.

ACCESSORIES

Provided accessories	: RF cable, Lithium battery CR2032, Infrared remote control unit, Conversion plug*

*Not provided in certain areas.

Specifications shown are for SP mode unless specified otherwise.
E. & O.E. Design and specifications subject to change without notice.

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DIFFERENCE LIST

DIFFERENT TABLE OF FEATURE

The following table indicate main different points between models HR-P57AG, HR-P58AG, HR-V200AG, HR-V207AG and HR-V400AG.

ITEM \ MODEL	HR-P57AG	HR-P58AG	HR-V200AG	HR-V207AG	HR-V400AG
BODY COLOR	PURE SILVER	BLACK	PURE SILVER	←	←
RCU COLOR	DARK GRAY	←	LIGHT GRAY	←	←
RCU BATTERY	UM-3 x2	←	CR2032	←	←
VIDEO HEAD	2	←	←	←	DA4
FRAME ADVANCE & STILL	REDUCED NOISE	←	←	←	NOISELESS
INDEX SEARCH/MARK	NOT USED	←	USED	←	←
SKIP SEARCH	NOT USED	←	USED	←	←
INSTANT RE-VIEW	NOT USED	←	USED	←	←
SECAM PLAYBACK	NOT USED	←	←	USED(SP only)	NOT USED
SQPB	NOT USED	←	←	←	USED(PAL(SP)/NTSC(SP))
PICTURE CONTROL	NOT USED	←	USED	←	←
FRONT INPUT	NOT USED	←	←	←	USED
TUNER	NOT USED	←	USED	←	←
RF CONVERTER	USED	←	NOT USED	←	←
RF OUT CH/RF OUT SYSTEM	36CH±4/G,K	←	28-60CH,GHKI	←	←
TIMER RECORDING	NOT USED	←	USED	←	←
DISPLAY TYPE	2-DOT LED	←	4-DIGIT LED GREEN	←	←
POWER OFF DIMMER	NOT USED	←	USED	←	←
ON SCREEN TYPE	2-COLOR	←	3 COLOR	←	←
OSD LANGUAGE	ENGLISH	←	ENG,RUS,ARA	←	←
COLOR BACK EE / PLAYBACK	NOT USED	←	USED	←	←
HEAD CLEANING WARNING	NOT USED	←	USED	←	←

Notes: Mark ← is same as left.

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded ( ) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape 3) Spacers 5) Barrier
   2) PVC tubing 4) Insulation sheets for transistors

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

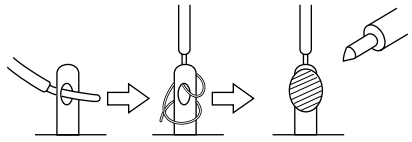


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

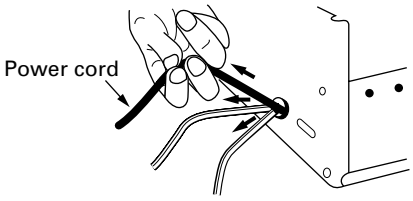


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

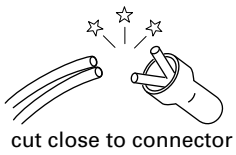


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

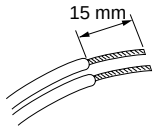


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

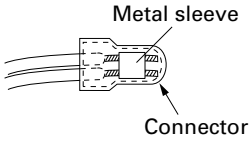


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

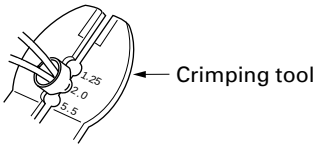


Fig.6

(5) Check the four points noted in Fig.7.

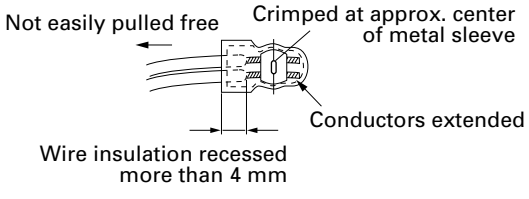

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

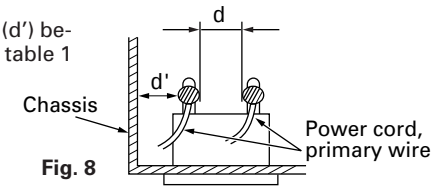


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

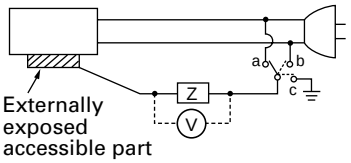


Fig. 9

5. Grounding (Class Ⅰ model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

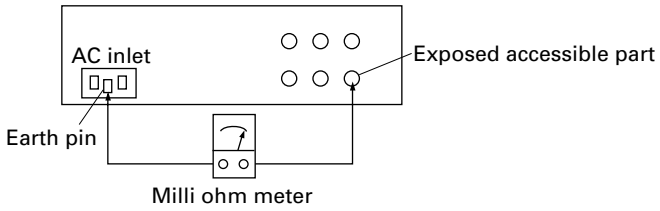


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class Ⅱ) AC 1.5 kV 1 minute (Class Ⅰ)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 µF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SECTION 1
DISASSEMBLY

1.1 Manually removing the cassette tape

If you cannot remove the cassette tape which is loaded because of any electrical or mechanical failures, manually remove it by taking the following steps.

(1) Unplug the power cord plug from the power outlet.
(2) Refer to the disassembly procedure of the VCR and perform the disassembly of the major parts before removing the mechanism assembly. (See Fig. 1-1a)

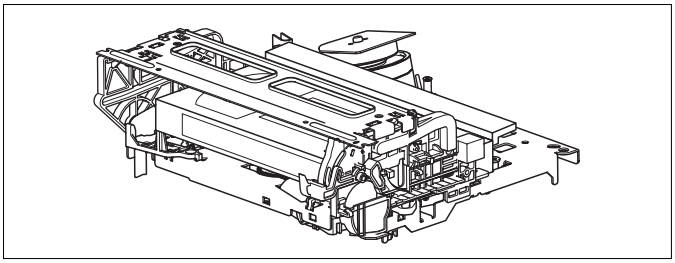


Fig. 1-1a

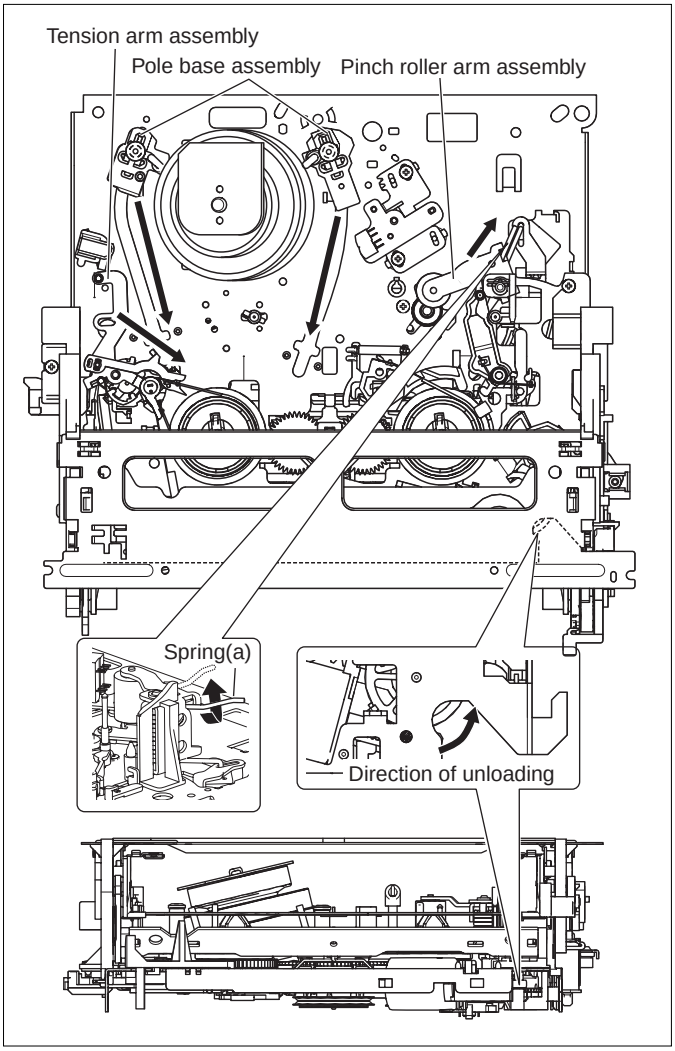


Fig. 1-1b

(3) Unload the pole base assembly by manually turning the gear of the loading motor until the pole base assembly is hidden behind the cassette lid. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig. 1-1b.)
In case of mechanical failures, while keeping the tension arm assembly free from tension, pull out the tape on the pole base assembly. Take the spring(a) of the pinch roller arm assembly off the hook, and detach it from the tape.
(4) Remove the screw (a) of the side frame (L/R).
(5) Hold the slack tape and cassette cover together, lift the cassette tape, top frame, cassette holder and side frames (L, R) together from the rear and remove them by disengaging the hooks (a) and (b).

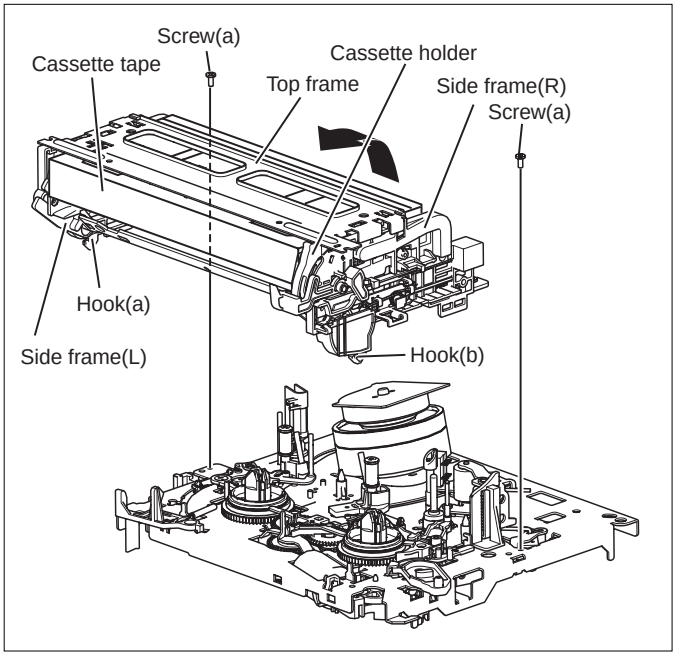


Fig. 1-1c

(6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

1.2 Removing the major parts

1.2.1 How to read the procedure table

This table shows the steps for disassembly of the externally furnished parts and board assemblies. Reverse these steps when re-assembling them.

<Example>

Step/ Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover,	1-3a	4(S1a),(S1b),3(L1a), 2(SD1a),(P1a),(W1a), CN1(WR1a),	<Note 1a>
	Bracket		2(S1c)	

(1) (2) (3) (4) (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order.
These numbers are also used as the identification (location) No. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig. No. showing procedure or part location.
(4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P= Spring, W= Washer, S= Screw, L= Locking tab, SD= Solder, CN**(WR**)= Remove the wire (WR**) from the connector (CN**).

Note:

- ***The bracketed ( ) WR of the connector symbol are assigned nos. in priority order and do not correspond to those on the spare parts list.***

(5) Adjustment information for installation

1.2.2 Disassembly procedure

Step/ Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover	1-2-2d	2(S1a), (S1b)	
[2]	Front panel assembly	1-2-2d	2(S2a), 2(L2a),2(L2b), 3(L2c)	<Note 2a> <Note 2b>
[3]	Mechanism assembly	1-2-2d	CN2001(WR3a), (S3a), (S3b)	<Note 2a> <Note 3a> <Note 3b> <Note 3c>
	(Drum assembly)		CN1(WR3b), (S3x), (S3y), (S3z)	
	(H. cleaner assembly)		2(L3c)	
[4]	Main board assembly	1-2-2d	(L4a)	

<Note 2a>

- Be careful not to damage the connector and wire etc. during connection and disconnection.
- When connecting the flat wire to the connector, be careful with the flat wire direction.

<Note 2b>

- When reattaching the Front panel assembly, make sure that the door opener of the Side frame (R) is lowered in position prior to the reinstallation.
- When reattaching the Front panel assembly, pay careful attention to the switch lever of the Front panel assembly not to make it touch the switch knob of the Main board assembly from the side.
- When reattaching the Front panel assembly, lift the Cassette door slightly.

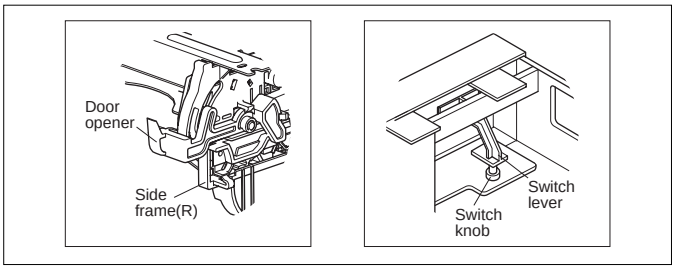


Fig. 1-2-2a

<Note 3a>

- When reattaching the Mechanism assembly, secure the screws (S3a to S3b) in the order of a, b.

<Note 3b>

- When reattaching the Mechanism assembly, be sure to align the phase of the Rotary encoder on the Main board assembly.
- When reattaching the Mechanism assembly, set the “Mechanism assembling mode”. (See “section 2 mechanism”.)
- When reattaching the Mechanism assembly to the Main board assembly, take care not to damage the sensors and switch on the Main board assembly.

<Note 3c>

- When reattaching the Drum assembly, secure the screws (S3x to S3z) in the order of x, y, z.

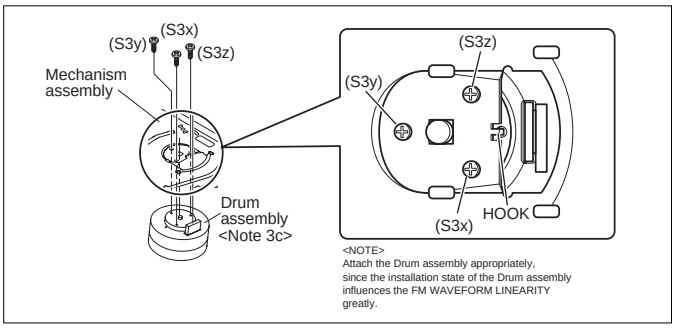


Fig. 1-2-2b

- When handling the drum assembly alone, hold it by the motor or shaft. Be careful not to touch other parts, especially the video heads. Also take care not to damage the connectors.

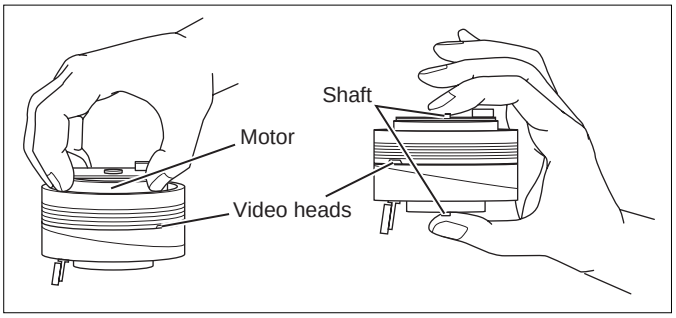


Fig. 1-2-2c

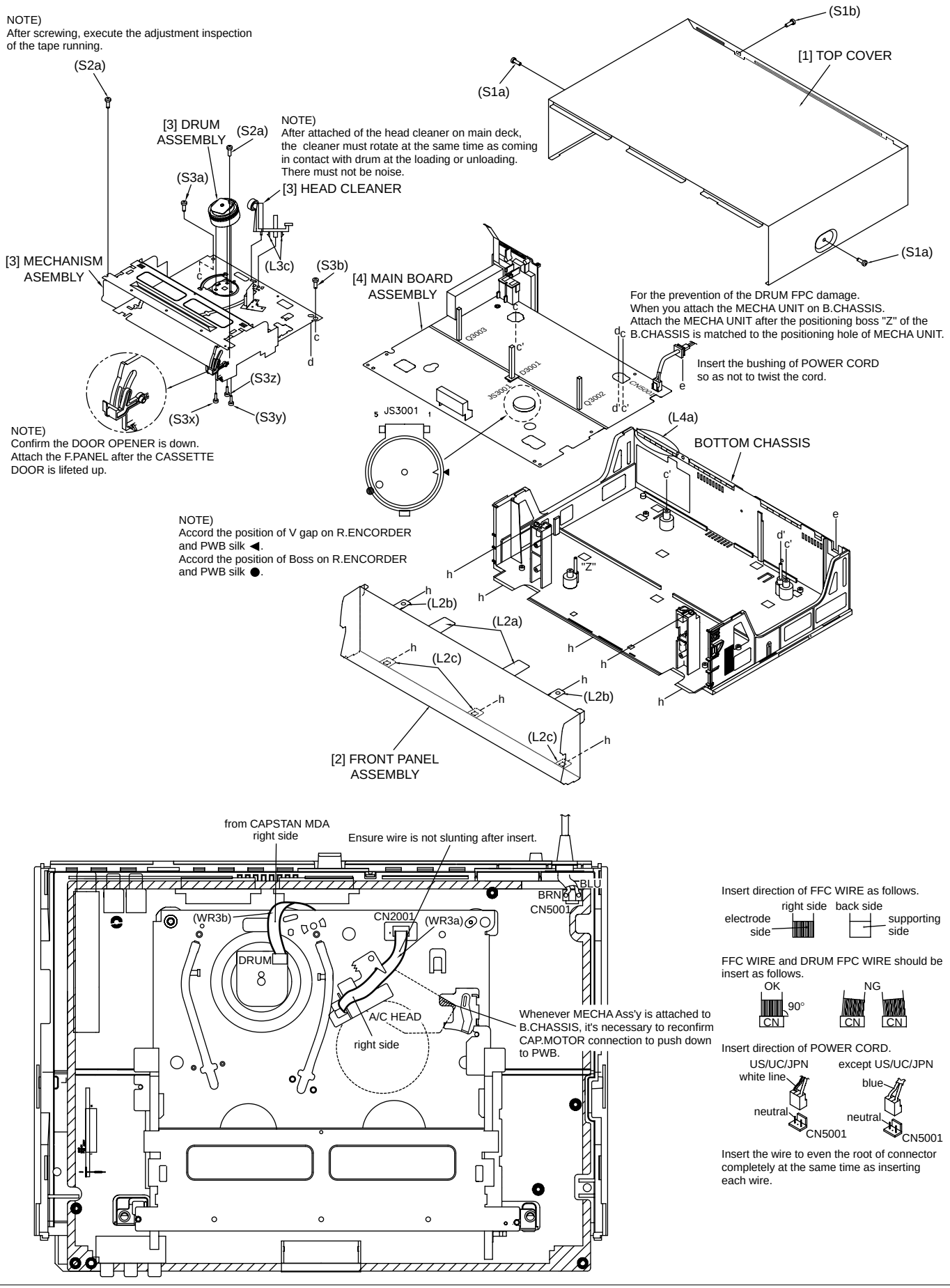

NOTE)
After screwing, execute the adjustment inspection of the tape running.
(S2a)
[3] DRUM ASSEMBLY
(S2a)
(S3a)
NOTE)
After attached of the head cleaner on main deck, the cleaner must rotate at the same time as coming in contact with drum at the loading or unloading. There must not be noise.
[3] HEAD CLEANER
[3] MECHANISM ASEMBLY
(L3c)
(S3b)
(S3z)
(S3x)
(S3y)
NOTE)
Confirm the DOOR OPENER is down.
Attach the F.PANEL after the CASSETTE DOOR is lifeted up.
(S1b)
[1] TOP COVER
(S1a)
(S1a)
[4] MAIN BOARD ASSEMBLY
JS3001
For the prevention of the DRUM FPC damage.
When you attach the MECHA UNIT on B.CHASSIS.
Attach the MECHA UNIT after the positioning boss "Z" of the B.CHASSIS is matched to the positioning hole of MECHA UNIT.
Insert the bushing of POWER CORD so as not to twist the cord.
(L4a)
BOTTOM CHASSIS
NOTE)
Accord the position of V gap on R.ENCORDER and PWB silk ◀.
Accord the position of Boss on R.ENCORDER and PWB silk ●.
"Z"
(L2b)
(L2a)
(L2c)
(L2b)
(L2c)
[2] FRONT PANEL ASSEMBLY
from CAPSTAN MDA right side
Ensure wire is not slunting after insert.
BLU
BRN
CN5001
(WR3b)
CN2001
(WR3a)
DRUM
A/C HEAD
right side
Whenever MECHA Ass'y is attached to B.CHASSIS, it's necessary to reconfirm CAP.MOTOR connection to push down to PWB.
Insert direction of FFC WIRE as follows.
right side
back side
electrode side
supporting side
FFC WIRE and DRUM FPC WIRE should be insert as follows.
OK
NG
90°
CN
Insert direction of POWER CORD.
US/UC/JPN
except US/UC/JPN
white line
blue
neutral
neutral
CN5001
CN5001
Insert the wire to even the root of connector completely at the same time as inserting each wire.

Fig. 1-2-2d

1.3 Emergency display function

This unit saves details of the last two emergencies as the EMG history and allows the status of the VCR and the mechanism of each emergency to be shown both on the display and as OSD information.
When using the emergency function, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received).

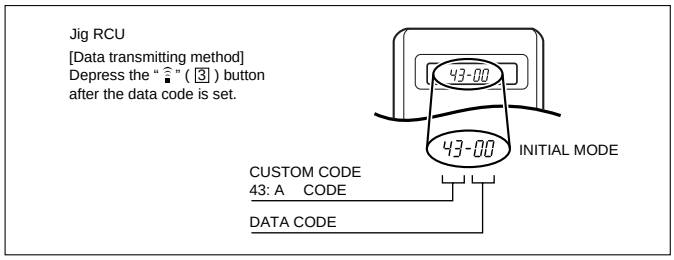


Fig. 1-3a Jig RCU [PTU94023B]

1.3.1 Displaying the EMG information

The EMG detail of information can be displayed by transmitting the code "59" from the Jig RCU.

Note:

- ***The EMG detail information <1><2> show the information on the latest EMG.***
  It becomes " – – : – – : – –" when there is no latest EMG record.

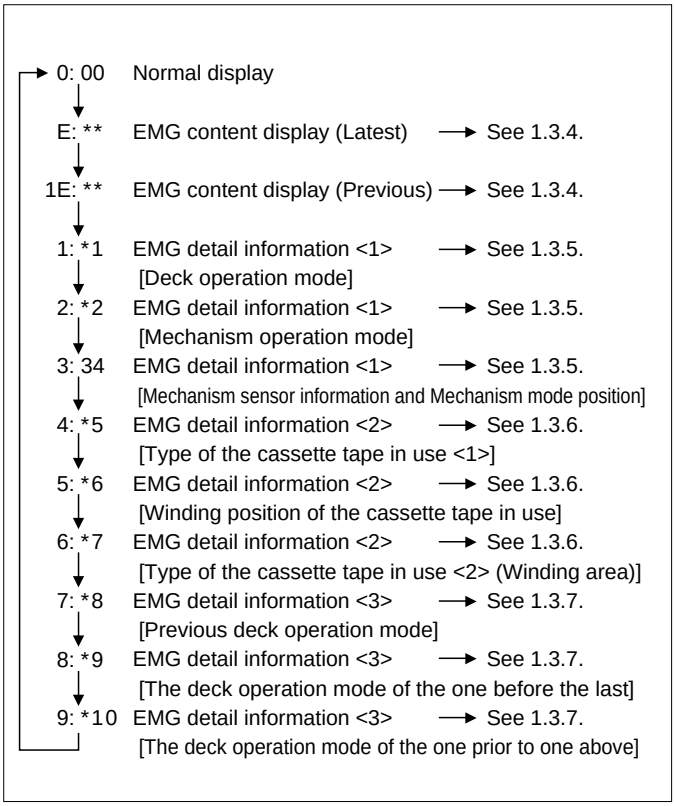

0: 00 Normal display
E: ** EMG content display (Latest) → See 1.3.4.
1E: ** EMG content display (Previous) → See 1.3.4.
1: *1 EMG detail information <1> → See 1.3.5.
[Deck operation mode]
2: *2 EMG detail information <1> → See 1.3.5.
[Mechanism operation mode]
3: 34 EMG detail information <1> → See 1.3.5.
[Mechanism sensor information and Mechanism mode position]
4: *5 EMG detail information <2> → See 1.3.6.
[Type of the cassette tape in use <1>]
5: *6 EMG detail information <2> → See 1.3.6.
[Winding position of the cassette tape in use]
6: *7 EMG detail information <2> → See 1.3.6.
[Type of the cassette tape in use <2> (Winding area)]
7: *8 EMG detail information <3> → See 1.3.7.
[Previous deck operation mode]
8: *9 EMG detail information <3> → See 1.3.7.
[The deck operation mode of the one before the last]
9: *10 EMG detail information <3> → See 1.3.7.
[The deck operation mode of the one prior to one above]

Fig. 1-3-1a EMG display of 7segment LED display model

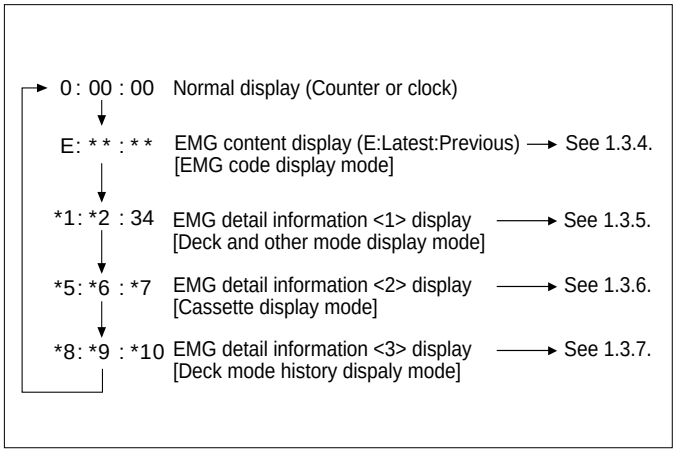

0 : 00 : 00 Normal display (Counter or clock)
E: * * : * * EMG content display (E:Latest:Previous) → See 1.3.4.
[EMG code display mode]
*1: *2 : 34 EMG detail information <1> display → See 1.3.5.
[Deck and other mode display mode]
*5: *6 : *7 EMG detail information <2> display → See 1.3.6.
[Cassette display mode]
*8: *9 : *10 EMG detail information <3> display → See 1.3.7.
[Deck mode history dispaly mode]

Fig. 1-3-1b EMG display of FDP display model

<Reference> EMG display of FDP display mode

(1) Transmit the code "59" from the Jig RCU.
The FDP shows the EMG content in the form of "E: * * : * * ".

<Example 1> E : 01 : 03
Previous EMG
Latest EMG

<Example 2> E : – – : – – ← No EMG record

(2) Transmit the code "59" from the Jig RCU again.
The FDP shows the EMG detail information <1> in the form of " * 1 : * 2 : 34 ".
- * 1 : Deck operation mode at the moment of EMG
- * 2 : Mechanism operation mode at the moment of EMG
- 3– : Mechanism sensor information at the moment of EMG
- –4 : Mechanism mode position at the moment of EMG

(3) Transmit the code "59" from the Jig RCU once again.
The FDP shows the EMG detail information <2> in the form of " * 5 : * 6 : * 7 ".
- * 5 : Type of the cassette tape in use <1> .
- * 6 : Winding position of the cassette tape in use
- * 7 : Type of the cassette tape in use <2> (Winding area)

(4) Transmit the code "59" from the Jig RCU once again.
The FDP shows the EMG detail information <3> in the form of "*8 : *9 : *10".
- * 8 : Previous deck operation mode at the moment of EMG
- * 9 : The deck operation mode of the one before the last at the moment of EMG
- * 10 : The deck operation mode of the one prior to one above at the moment of EMG

(5) Transmit the code "59" from the Jig RCU once again to reset the display.

1.3.2 Clearing the EMG history

(1) Display the EMG history.
(2) Transmit the code "36" from the Jig RCU.
(3) Reset the EMG display.

1.3.3 Details of the OSD display in the EMG display mode

During the EMG display, the OSD shows the data on the deck mode, etc. The details of the display contents are as follows.

Notes:

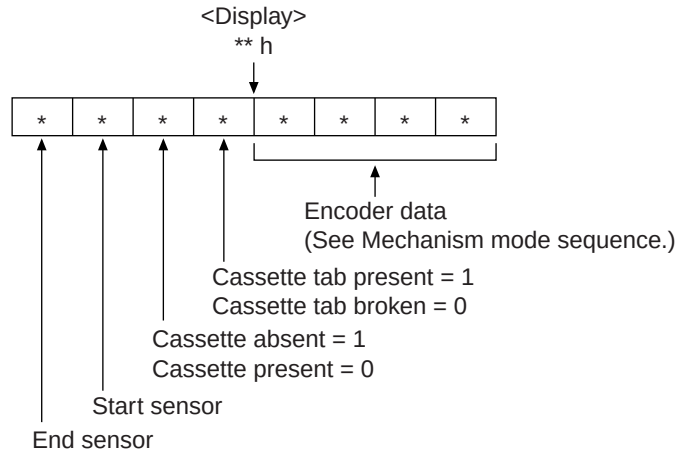
- ***The display is variable depending on the part No. of the System Control microcomputer (IC3001) built into the VCR. In the following, refer to the figure carrying the same two characters as the top two characters of the part number of your IC.***
- ***The sensor information in the OSD display contents is partially different from the mechanism sensor information in EMG detail information <1>.***

[For MN* only]

AA	BB	CC	DD	EE
FF	GG	HH	I I	J J
KK	L L	MM	NN	OO
PP	QQ	RR	SS	TT
UU	VV	WW	XX	YY

A A : Deck operation mode (See EMG detail information <1>.)
B B : Mechanism operation mode (See EMG detail of information <1>.)
C C : Mechanism transition flag
D D : Capstan motor control status
E E : Loading motor control status
F F : Sensor information (See sensor information details.)
GG : Capstan motor speed
HH : Key code (JVC code)
I I : Supply reel winding diameter data, higher 8 bits.
J J : Supply reel winding diameter data, lower 8 bits.
KK : Mechanism sensor information & mechanism mode position (See EMG detail of information <1>.)
L L : Tape speed data, higher 8 bits.
MM : Tape speed data, lower 8 bits.
N N : Cassette tape type <2>, higher 8 bits. (See EMG detail of information <2>.)
OO : Cassette tape type <2>, lower 8 bits. (See EMG detail of information <2>.)
P P : General data display area
| |
Y Y : General data display area

***FF: Sensor information details**

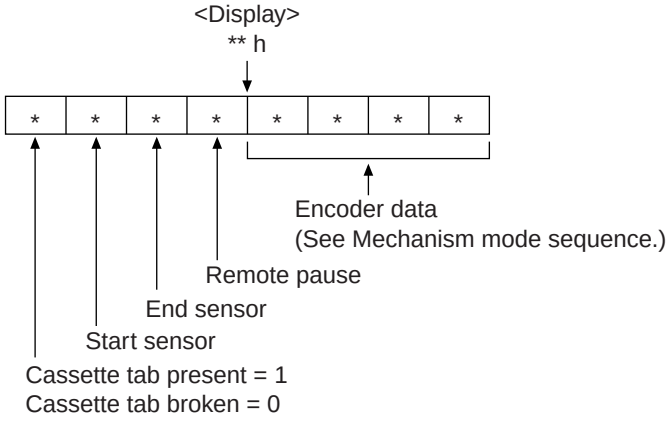


[For *HD only]

AA	BB	CC
DD	EE	FF
GGGG	HHHH	
I I	J J J J	
KKKK	L L L L	MMMM
ROM No.		

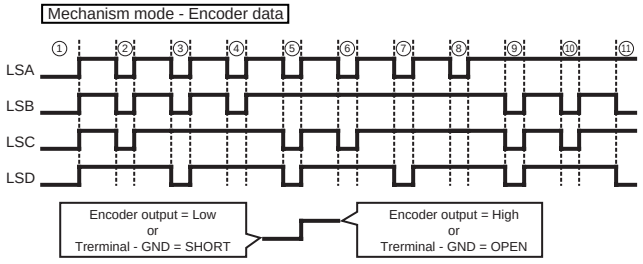
A A : Key code (JVC code)
B B : Deck operation mode (See EMG detail information <1>.)
C C : Mechanism operation mode (See EMG detail information <1>.)
D D : Sensor information (See sensor information details.)
E E : Capstan motor speed (Search, double speed)
F F : Tracking value
GGGG : Cassette tape type <2>, 16 bits. (See EMG detail information <2>.)
HHHH : Supply reel winding diameter data
I I : Capstan motor speed (FF/REW, double speed)
J J J J : Tape speed data, lower 8 bits.
K K K K : General data display area
L L L L : General data display area
MMMM : General data display area

***DD: Sensor information details**

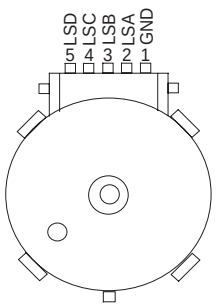


[For both MN*/HD*]

Mechanism mode sequence



No.	Position	Encoder data
①	EJECT	0 h = 0000
②	EJECT1	1 h = 0001
③	EJECT2	2 h = 0010
④	ULSTOP	3 h = 0011
⑤	UPPER	4 h = 0100
⑥	ONSTOP(PLAY)	5 h = 0101
⑦	FWD/SS	6 h = 0110
⑧	REV/SS	7 h = 0111
⑨	OFFSTOP	8 h = 1000
⑩	FFREW-BRAKE	9 h = 1001
⑪	FFREW	A h = 1010
⑫	MIDDLE	F h = 1111



1.3.4 EMG content description

Note: ***EMG contents "E08/E09" are for the model with Dynamic Drum (DD).***

FDP	CONTENT	CAUSE
E01: Loading EMG	If the mechanism mode does not change to the next mode within 4 seconds after the loading motor starts rotating in the loading direction, while the mechanism is in the after-loading position (with the tape up against the pole base), [E:01] is identified and the power is switched OFF. However, if the tape loading is not completed within 4 seconds after the loading motor starts rotating in the loading direction, the tape is simply unloaded and ejected. No EMG data is recorded in this case.	1. The mechanism is locked in the middle of the mode transition during a tape loading operation. 2. The mechanism overruns during the tape loading operation because the SYSCON cannot recognize the mechanism mode normally. This problem is due to a cause such as a rotary encoder failure. 3. Power is not supplied to the loading MDA. (M12V/Vcc/Vref/ICP are disconnected in the middle.)
E02: Unloading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the unloading direction, [E:02] is identified and the power is turned off.	1. The mechanism is locked in the middle of mode transition. 2. Without an eject signal being sent from the SYSCON, unloading is attempted (i.e. Ejection is attempted while the tape is still inside the mechanism.) because the SYSCON cannot recognize the mechanism mode normally. This is due to a cause such as a rotary encoder failure. (Mechanism position: UPPER) 3. Power is not supplied to the loading MDA. (M12V/Vcc/Vref/ICP are disconnected in the middle.)
E03: Take Up Reel Pulse EMG	When the falling edje of the take-up reel pulse has not been generated for more than 4 seconds in the capstan rotating mode, [E:03] is identified, the pinch rollers are turned off and stopped, and the power is turned off. In this case, however, the mechanism should be in position after tape loading. Note that the reel EMG is not detected during Slow/Frame advance operations.	1. The take-up reel pulse is not generated in the FWD transport modes (PLAY/FWD SEARCH/FF, etc.) because; 1)The idler gear is not meshed with the take-up reel gear because the mechanism malfunctions for some reason. 2)The idler gear is meshed with the take-up reel gear, but incapable of winding due to too large mechanical load (abnormal tension); 3)The reel is rotating normally but an FG pulse is not generated due to the take-up reel sensor failure. 2. The supply reel pulse is not generated in the REV transport modes (REV SEARCH/REW, etc.) because; 1) The idler gear is not meshed with the supply reel gear because the mechanism malfunctions for some reason. 2) The idler gear is meshed with the supply reel gear, but incapable of winding due to too large a mechanical load (abnormal tension); 3) The reel rotates normally but the FG pulse is not generated due to a supply reel sensor failure. 3. Power(SW5V) is not supplied to the reel sensor on the tape winding side.
E04: Drum FG EMG	When the drum FG pulse has not been input for more than 3 seconds in the drum rotating mode, [E:04] is identified, the pinch rollers are turned off and stopped, and the power is turned off.	1. The drum could not start or the drum rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high; 2) The tape is damaged or a foreign object (grease, etc.) adheres to the tape. 2. The drum FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (hall device) of the drum is faulty. 3. The drum control voltage (DRUM CTL V) is not supplied to the MDA. 4. Power (M12V) is not supplied to the drum MDA.
E05: Cassette Eject EMG	If the cassette does not reach the eject position within about 0.7 seconds after the cassette housing has started the cassette ejection operation, [E:05] is identified, the drive direction is reversed to load the tape, the mode is switched to STOP mode with the pinch roller OFF, and the power is switched OFF. During the cassette insertion process, the drive direction is reversed and the cassette is ejected if the tape is not up against the pole base within about 3 seconds after the start of the cassette pulling-in operation. If the cassette does not reach the eject position within about 0.7 seconds after the drive mode reversal operation, [E:05] is identified and the power is switched OFF immediately.	1. The cassette cannot be ejected due to a failure in the drive mechanism of the housing. 2. When the housing load increases during ejection, the loading motor is stopped because of lack of headroom in its drive torque. Housing load increasing factors: Temperature environment (low temperature, etc.), mechanism wear or failure. 3. The sensor/switch for detecting the end of ejection are not functioning normally. 4. The loading motor drive voltage is lower than specified or power (M12V) is not supplied to the motor (MDA). 5. When the user attempted to eject a cassette, a foreign object (or perhaps the user's hand) was caught in the opening of the housing.
E06: Capstan FG EMG	When the capstan FG pulse has not been generated for more than 1 second in the capstan rotating mode, [E:06] is identified, the pinch rollers are turned off and stopped, and the power is turned off.However, the capstan EMG is not detected in SLOW/STILL modes. Note that, if the part number of the System Control IC begins with "MN" or "M3", the capstan EMG is not detected even during the FF/REW operation.	1. The capstan could not start or the capstan rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high (mechanical lock); 2) The tape is damaged or a foreign object (grease, etc.) is adhered to the tape (occurrence of tape entangling, etc.). 2. The capstan FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (MR device) of the capstans is faulty. 3. The capstan control voltage (CAPSTAN CTL V) is not supplied to the MDA. 4. Power (M12V, SW5V) are not supplied to the capstan MDA.
E07: SW Power Short-Circuit EMG	When short-circuiting of the SW power supply with GND has lasted for 0.5 second or more, [E:07] is identified, all the motors are stopped and the power is turned off.	1. The SW 5 V power supply circuit is shorted with GND. 2. The SW 12 V power supply circuit is shorted with GND.
E08: DD Initialized (Absolute Position Sensor) EMG	When DD tilting does not complete in 4 seconds, [E:08] is identified, the tilt motor is stopped and the power is turned off.	1. The absolute value sensor is defective. (The soldered parts have separated.) 2. The pull-up resistor at the absolute sensor output is defective. (The soldered parts have separated.) 3. Contact failure or soldering failure of the pins of the connector (board-to-board) to the absolute value sensor. 4. The absolute value sensor data is not sent to the System Controller CPU.
E09: DD FG EMG	When the DD FG pulse is not generated within 2.5 seconds, [E:09] is identified, the tilt motor is stopped and the power is turned off.	1. The FG sensor is defective. (The soldered parts have separated.) 2. The pull-up resistor at the FG sensor output is defective. (The soldered parts have separated.) 3. Contact failure or soldering failure of the pins of the connector (board-to-board) to the FG sensor. 4. The power (5V) to the sensor is not supplied. (Connection failure/soldering failure) 5. The FG pulse is not sent to the System Controller CPU. 6. The tilt motor is defective. (The soldered parts have separated.) 7. The drive power to the tilt motor is not supplied. (Connection failure/soldering failure) 8. The tilt motor drive MDA - IC is defective. 9. Auto-recovery of the DD tilting cannot take place due to overrun.
E0A: Supply Reel Pulse EMG	When the falling edge of the supply reel pulse has not been generated for more than 10 seconds in the capstan rotating mode, [E:0A] is identified and the cassette is ejected (but the power is not turned off). In this case, however, the mechanism should be in the position after tape loading (with the tape up against the pole base). Also note that the reel EMG is not detected during Slow/Frame advance operations.	1. The supply reel pulse is not generated in the FWD transport mode (PLAY/FWD SEARCH/FF, etc.) because; 1) PLAY/FWD or SEARCH/FF is started while the tape in the inserted cassette is cut in the middle; 2) A mechanical factor caused tape slack inside and outside the supply reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the FWD transport, so the pulse is not generated until then; 3) The reel is rotating normally but the FG pulse is not generated due to a supply reel sensor failure. 2. The take-up reel pulse is not generated in the REV transport mode (REV SEARCH/REW, etc.). 1) REV SEARCH/REW is started when the tape in the inserted cassette has been cut in the middle; 2) A mechanical factor caused tape slack inside and outside the take-up reel side of the cassette shell. In this case, the take-up reel will not rotate until the tape slack is removed by the REV transport, so the pulse will not be generated until that time; 3) The reel is rotating normally but the FG pulse is not generated due to a take-up reel sensor failure. 3. The power (SW 5V) to a reel sensor is not supplied.
EU1: Head clog warning history	Presupposing the presence of the control pulse output in the PLAY mode, when the value obtained by mixing the two V.FM output channels (without regard to the A.FM output) has remained below a certain threshold level for more than 10 seconds, [E:U1] is identified and recorded in the emergency history. During the period in which the head clog is detected, the FDP shows "U:01" and the OSD repeats the "3 seconds of warning display" and the "7 seconds of noise picture display" alternately. EMG code : "E:C1" or "E:U1" / FDP : "U:01" / OSD : "Try cleaning tape." or "Use cleaning cassette." The head clog warning is reset when the above-mentioned threshold has been exceeded for more than 2 seconds or the mode is changed to another mode than PLAY.	

Table 1-3-4a

1.3.5 EMG detail information <1>

The status (electrical operation mode) of the VCR and the status (mechanism operation mode/sensor information) of the mechanism in the latest EMG can be confirmed based on the figure in EMG detail information <1> .

[FDP/OSD display]

*1 : *2 : 34

*1 : Deck operation mode at the moment of EMG
*2 : Mechanism operation mode at the moment of EMG
3– : Mechanism sensor information at the moment of EMG
–4 : Mechanism mode position at the moment of EMG

Note:

- ***For EMG detailed information <1>, the content of the code that is shown on the display (or OSD) differs depending on the parts number of the system control microprocessor (IC3001) of the VCR. The system control microprocessor parts number starts with two letters, refer these to the corresponding table.***

***1 : Deck operation mode**
[Common table of MN* and HD]

Display		Deck operation mode
MN*	HD*	
00	-	Mechanism being initialized
01	00	STOP with pinch roller pressure off (or tape present with P.OFF)
02	01	STOP with pinch roller pressure on
03	-	POWER OFF as a result of EMG
04	04	PLAY (Normal playback)
0C	0E	REC
10	11	Cassette ejected
20	22	FF
21	-	Tape fully loaded, START sensor ON, short FF
22	-	Cassette identification FWD SEARCH before transition to FF (SP x7-speed)
24	26	FWD SEARCH (variable speed) including x2-speed
2C	2E	INSERT REC
40	43	REW
42	-	Cassette identification REV SEARCH before transition to REW (SP x7-speed)
44	47	REV SEARCH (variable speed)
4C	4C	AUDIO DUB
6C	6E	INSERT REC (VIDEO + AUDIO)
84	84	FWD STILL / SLOW
85	85	REV STILL / SLOW
8C	8F	REC PAUSE
8D	-	Back spacing
8E	-	Forward spacing (FWD transport mode with BEST function)
AC	AF	INSERT REC PAUSE
AD	-	INSERT REC back spacing
CC	CD	AUDIO DUB PAUSE
CD	-	AUDIO DUB back spacing
EC	EF	INSERT REC (VIDEO + AUDIO) PAUSE
ED	-	INSERT REC (VIDEO + AUDIO) back spacing

***2 : Mechanism operation mode**
[Table of MN*]

Display	Mechanism operation mode
00	Command standby (No command to be executed)
01	Immediate Power OFF after EMG occurrence
02	Loading from an intermediate position during mechanism initialization
03	Unloading due to EMG occurrence during mechanism initialization
04	Ejecting cassette (ULSTOP to EJECT)
05	Inserting cassette (EJECT to ULSTOP)
06	Loading tape (ULSTOP to PLAY)
07	Unloading tape (PLAY to ULSTOP)
08	Transition from pinch roller ON to STOP
09	Transition from pinch roller OFF to STOP (PLAY to OFFSTOP)
0A	Transition from pinch roller OFF to STOP at power OFF
0B	Transition from pinch roller ON to STOP at power ON
0C	Transition to PLAY
0D	Transition to Search FF
0E	Transition to REC
0F	Transition to FWD STILL/SLOW
10	Transition to REV STILL/SLOW
11	Transition to Search REV
12	Transition from FF/REW to STOP
13	Transition to FF
14	Transition to REW
15	Tape end detection processing during loading
16	Short FWD/REV at tape sensor ON during unloading
17	Transition to FF/REW brake mode

[Table of HD*]

Display	Mechanism operation mode
00	STOP with pinch roller pressure off
01	STOP with pinch roller pressure on
02	U/L STOP (or tape being loaded)
04	PLAY (Normal playback)
05	PLAY (x1-speed playback using JOG)
0E	REC
11	Cassette ejected
22	FF
26	FWD SEARCH (variable speed) including x2-speed
2E	INSERT REC
43	REW
47	REV SEARCH
4C	AUDIO DUB
6E	INSERT REC (VIDEO + AUDIO)
84	FWD STILL/SLOW
85	REV STILL/SLOW
8F	REC PAUSE
AF	INSERT REC PAUSE
C7	REV SEARCH (x1-speed reverse playback using JOG)
CD	AUDIO DUB PAUSE
EF	INSERT REC (VIDEO + AUDIO) PAUSE
F0	Mechanism being initialized
F1	POWER OFF as a result of EMG
F2	Cassette being inserted
F3	Cassette being ejected
F4	Transition from STOP with pinch roller pressure on to STOP with pinch roller pressure off
F5	Transition from STOP with pinch roller pressure on to PLAY
F6	Transition from STOP with pinch roller pressure on to REC
F7	Cassette type detection SEARCH before FF/REW is being executed
F8	Tape being unloaded
F9	Transition from STOP with pinch roller pressure off to STOP with pinch roller pressure on
FA	Transition from STOP with pinch roller pressure off to FF/REW
FB	Transition from STOP with pinch roller pressure off to REC.P (T.REC,etc.)
FC	Transition from STOP with pinch roller pressure off to cassette type detection SEARCH
FD	Short REV being executed after END sensor on during unloading
FE	Tension loosening being executed after tape loading (STOP with pinch roller pressure on)
FF	Tape being unloaded

3– : Mechanism sensor information
[Common table of MN* and HD*]

Display	Mechanism sensor information			
	REC safety SW	Start sensor	End sensor	Mechansim position sensor
0-	Tab broken	ON	ON	ON
1-	Tab broken	ON	ON	OFF
2-	Tab broken	ON	OFF	ON
3-	Tab broken	ON	OFF	OFF
4-	Tab present	OFF	ON	ON
5-	Tab present	OFF	ON	OFF
6-	Tab present	OFF	OFF	ON
7-	Tab present	OFF	OFF	OFF
8-	Tab broken	ON	ON	ON
9-	Tab broken	ON	ON	OFF
A-	Tab broken	ON	OFF	ON
B-	Tab broken	ON	OFF	OFF
C-	Tab present	OFF	ON	ON
D-	Tab present	OFF	ON	OFF
E-	Tab present	OFF	OFF	ON
F-	Tab present	OFF	OFF	OFF

Tab broken = 0 Sensor ON = 0 Sensor ON = 0
Tab present = 1 sensor OFF = 1 Sensor OFF = 1

–4 : Mechanism mode position
[Common table of MN* and HD*]

Mechanism sensor information	Display	Deck operation mode	
Even number (0, 2, 4, 6, 8, A, C, E)	-0	Not established	
	-1	EJECT	EJECT position
	-2	EJECT-EJECT1	Intermodal position
	-3	EJECT1	EJECT1 position
	-4	EJECT1-EJECT2	Intermodal position
	-5	EJECT2	EJECT2 position
	-6	EJECT2-ULSTOP	Intermodal position
	-7	ULSTOP	ULSTOP position
	-8	ULSTOP-UPPER	Intermodal position
	-9	UPPER	Loading (unloading) tape
	-A	UPPER-ONSTOP	Intermodal position
	-B	ONSTOP	PLAY position
	-C	PLAY-FWD/SS	Intermodal position
	-D	FWD/SS	FWD (FWD Still/Slow) position
	-E	FWD/SS-REV	Intermodal position
	-F	REV	REV (REV Still/Slow) position
Odd number (1, 3, 5, 7, 9, B, D, F)	-0	REV-OFFSTOP	Intermodal position
	-1	OFFSTOP	Pinch roller OFF position
	-2	OFFSTOP-FFREWB	Intermodal position
	-3	FFREWB	FF/REW Brake position
	-4	FFREWB-FFREW	Intermodal position
	-5	FFREW	FF/REW position

1.3.6 EMG detail information <2>

The type of the cassette tape and the cassette tape winding position can be confirmed based on the figure in EMG detail information <2> .

[FDP/OSD display]

*5 :*6 :*7

*5 : Type of the cassette tape in use <1>
*6 : Winding position of the cassette tape in use
*7 : Type of the cassette tape in use <2> (Winding area)

Note:

- ***EMG detail information <2> is the reference information stored using the remaining tape detection function of the cassette tape. As a result, it may not identify cassette correctly when a special cassette tape is used or when the tape has variable thickness.***

***5 : Cassette tape type <1>**

Display	Cassette tape type <1>
00	Cassette type not identified
16	Large reel/small reel (T-0 to T-15/T-130 to T-210) not classified
82	Small reel, thick tape (T-120) identified/thin tape (T-140) identified
84	Large reel (T-0 to T-60) identified
92	Small reel, thick tape (T-130) identified/thin tape (T-160 to T-210) identified
93	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) not classified
C3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
D3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
E1	C cassette, thick tape (TC-10 to TC-20) identified
E2	Small reel, thick tape (T-0 to T-100) identified
E9	C cassette, thin tape (TC-30 to TC-40) identified
F1	C cassette, thick tape/thin tape (TC-10 to TC-40) not classified

Notes:

- ***Cassette tape type <1> is identified a few times during mode transition and the identification count is variable depending on the cassette tape type. If an EMG occurs in the middle of identification, the cassette tape type may not be able to be identified.***
- ***If other value than those listed in the above table is displayed, the cassette tape type is not identified.***

***6 : Cassette tape winding position**

The cassette tape winding position at the moment of EMG is displayed by dividing the entire tape (from the beginning to the end) in 21 sections using a hex number from “00” to “14”.

“00” : End of winding
“14” : Beginning of winding
“FF” : Tape position not identified

***7 : Cassette tape type <2> (Winding area)**

Display	Cassette tape type <2>		(Reference) Word data (Beginning) (End)
00	Cassette type not identified		
04 - 08	C cassette, thick tape	TC-10	(0497 - 0506) (0732 - 0858)
05 - 06	Small reel, thick tape	T-20	(05A9 - 0661)
05 - 0C	C cassette, thick tape	TC-20P	(0599 - 05FF) (0AA1 - 0C07)
06 - 0C	C cassette, thin tape	TC-40	(0623 - 063D) (0C41 - 0CC3)
06 - 0C	C cassette, thin tape	TC-30	(0611 - 0638) (0C0C - 0CB2)
07 - 08	Small reel, thick tape	T-40	(07CC - 08E5)
09 - 0B	Small reel, thick tape	T-60	(09FD - 0B78)
0C - 0D	Small reel, thick tape	T-80(DF-160)	(0C20 - 0DFC)
0D - 0F	Small reel, thick tape	T-90(DF-180)	(0D31 - 0F3E)
0E - 10	Small reel, thick tape	T-100	(0E43 - 107F)
10 - 12	Small reel, thin tape	T-140	(10E1 - 120C)
10 - 13	Small reel, thick tape	T-120(DF-240)	(1073 - 1313)
11 - 14	Small reel, thick tape	T-130	(1185 - 1429)
12 - 14	Small reel, thin tape	T-160	(12D3 - 141F)
13 - 14	Small reel, thin tape	T-210(DF-420)	(1373 - 14C3)
13 - 14	Small reel, thin tape	T-180(DF-360)	(1357 - 14C0)
13 - 14	Small reel, thin tape	T-168	(1395 - 14EE)
13 - 14	Small reel, thick tape	DF-300	(13A8 - 14CE)
15 - 16	Large reel	T-20	(1536 - 1618)
16 - 17	Large reel	T-30	(1647 - 175A)
17 - 18	Large reel	T-40	(1759 - 189C)
19 - 1B	Large reel	T-60	(1989 - 1B2F)

Note:

- ***The values of cassette tape type <2> in the above table are typical values with representative cassette tapes.***

1.3.7 EMG detail information <3>

Three deck operation modes preceding the deck operation mode in which the EMG occurs may be confirmed based on the figures in the EMG information detail <3>. For the contents of the displayed information, see the table "Deck operation mode" in section "1.3.5 EMG detail information <1>".

1.4 Service position

This unit has been designed so that the Mechanism and Main board assemblies can be removed together from the chassis assembly. Before diagnosing or servicing the circuit boards, take out the major parts from the chassis assembly.

1.4.1 How to set the “Service position”

(1) Refer to the disassembly procedure and perform the disassembly of the major parts before removing the Mechanism assembly.
(2) Remove the screws that fix the Mechanism assembly to the Chassis assembly. If any other screws are used to fix the boards, remove them also.
(3) Remove the combined Mechanism and Main board assemblies.
(4) If any other major parts are used, remove them also.
(5) Connect the wires and connectors of the major parts that have been removed in steps (1) to (4). (Refer to Fig. 1-2-2d.)
(6) Place the combined Mechanism, Main board and other board assemblies upside down.
(7) Insert the power cord plug into the power outlet and then proceed with the diagnostics and servicing of the board assembly.

Notes:

- ***Before inserting the power cord plug into the power outlet, make sure that none of the electrical parts are able to short-circuit between the workbench and the board assembly.***
- ***For the disassembly procedure of the major parts and details of the precautions to be taken, see “1.2 Removing the major parts”.***
- ***If there are wire connections from the Main board and Mechanism assemblies to the other major parts, be sure to remove them (including wires connected to the major parts) first before performing step (2).***
- ***When carrying out diagnosis and repair of the Main board assembly in the “Service position”, be sure to ground both the Main board and Mechanism assemblies. If they are improperly grounded, there may be noise on the playback picture or FDP counter display may move even when the mechanism is kept in an inoperative status.***
- ***In order to diagnose the playback or recording of the cassette tape, set the Mechanism assembly to the required mode before placing it upside down. If the mechanism mode is changed (including ejection) while it is in an upside down position the tape inside may be damaged.***
- ***For some models, the mechanism and board assemblies are attached by connectors only. When carrying out a diagnosis or repair of the boards in the “Service position”, make sure that the connectors are not disconnected.***

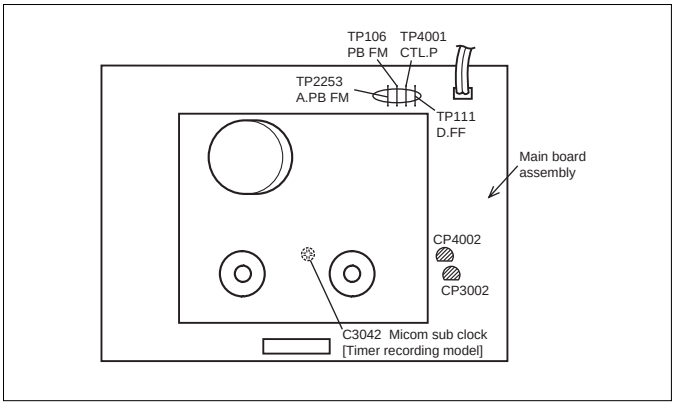


Fig. 1-4-1a

1.5 Jig RCU mode

This unit uses the following two modes for receiving remote control codes.

1) User RCU mode : Ordinary mode for use by the user.
2) Jig RCU mode : Mode for use in production and servicing.

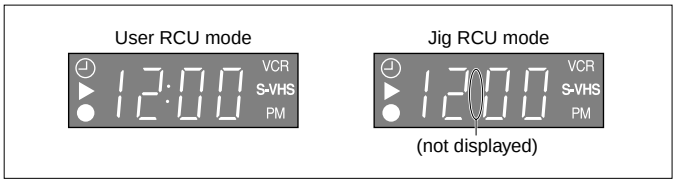


Fig. 1-5-1a

When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). As both of the above two modes are stored in the EEPROM, it is required to set the VCR back to the User RCU mode each time that an adjustment is made or to check that the necessary operations have been completed. These modes can be set by the operations described below.

Note:

- ***Confirm the RCU mode when exchanged parts. Since some SERVICE PARTS sets the VCR to the Jig RCU mode as initial setting.***

1.5.1 Setting the Jig RCU mode

(1) Unplug the power cord plug from the power outlet.
(2) Press and hold the “REC” and “PAUSE” buttons on the VCR simultaneously, while plugging the power cord plug into the power outlet. Alternatively, transmit the code "7F" from the Jig RCU.
(7 segment LED display model)
When the VCR is set to the Jig RCU mode, the symbols (“ : ”) in the time display of the FDP are turned off.
(non 7 segment LED display model)
When the VCR is set to the Jig RCU mode,the "POWER" button of RCU will not work.

1.5.2 Setting the User RCU mode

(1) Turn off the power.
(2) Press the “REC” and “PAUSE” buttons of the VCR simultaneously. Alternatively, transmit the code “80” from the Jig RCU.

1.6 Mechanism service mode

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the “Mechanism service mode”.

1.6.1 How to set the “Mechanism service mode”

(1) Set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received).
(2) Transmit the code “E5” from the Jig RCU.
(3) Release the lug of the Cassette holder and then slide the Cassette holder toward the direction where the Cassette holder is loaded by manually.
(4) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.
When the VCR is set to the Mechanism service mode, the symbols (“Timer”) in the FDP (LED) are blinked.

1.6.2 How to exit from the "Mechanism service mode"

(1) Unplug the power cord plug from the power outlet.

1.7 Maintenance and inspection

1.7.1 Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.
When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

Note:

- ***Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.***

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.
(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.
(3) After cleaning, make sure that the cleaned parts are completely dry before using the cassette tape.

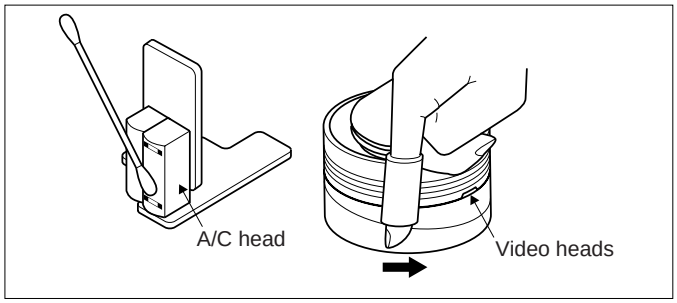


Fig. 1-7-1a

1.7.2 Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

Note:

- ***See the "mechanism assembly" diagram of the "parts list" for the lubricating or greasing spots, and for the types of oil or grease to be used.***

1.7.3 Suggested servicing schedule for main components

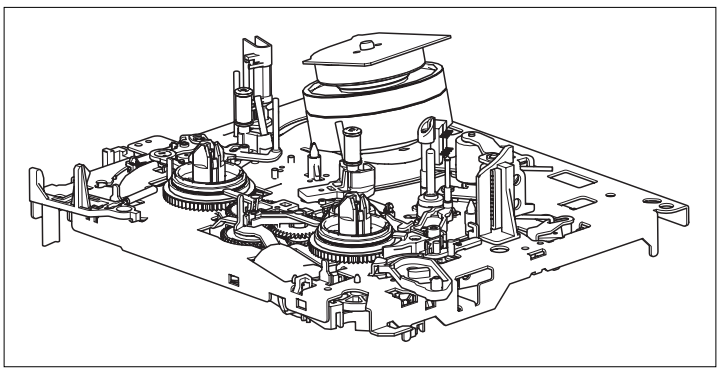
The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts name	Operation hours	
		1000H	2000H
Tape transport	Drum assembly	C,X	X
	A/C head	C,X	C,X
	Pinch roller arm assembly	C	C
	Full erase head	C	C
	Tension arm assembly	C	C
	Capstan motor (Shaft)	C	C
	Guide arm assembly	C	C
Drive	Capstan motor		X
	Capstan brake assembly		X
	Main brake assembly		X
	Belt (Capstan)	X	X
	Loading motor		X
	Clutch unit		X
	Worm gear		X
	Control plate		X
Other	Rotary encoder		X

C : Cleaning
X : Inspection or Replacement if necessary

SECTION 2
MECHANISM

For disassembling and assembling of MECHANISM ASSEMBLY, refer to the SERVICE MANUAL No.86700(MECHANISM ASSEMBLY).



MECHANISM ASSEMBLY

SECTION 3
ADJUSTMENT

3.1 Before adjustment

3.1.1 Precaution

- ***The adjustments of this unit include the mechanism compatibility and electrical adjustments. During the performance of this work, be sure to observe the precautions for each type of adjustment.***
- ***If there is a reference to a signal input method in the signal column of the adjustment chart, "Ext. S-input" means the Y/C separated video signal and "Ext. input" means the composite video signal input.***
- ***Unless otherwise specified, all measuring points and adjustment parts are located on the Main board.***

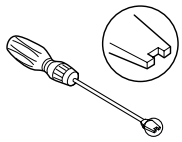
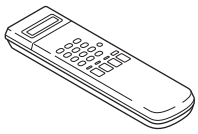
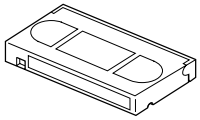
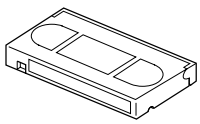
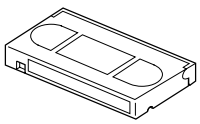
3.1.2 Required test equipments

- Color (colour) television or monitor
- Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- Signal generator: RF / IF sweep / marker
- Signal generator: stairstep, color (colour) bar [PAL/NTSC]
- Recording tape
- Digit-key remote controller(provided)

3.1.3 Required adjustment tools

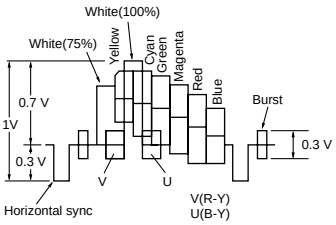
○ : Used – : Not used

	Mechanism compatibility adjustment	Electrical adjustment
Roller driver	○	–
Jig RCU	–	○
Back tension cassette gauge	○	–
Alignment tape(MHPE)	○	–
Alignment tape(MHPE-L)	○	○

Roller driver PTU94002	Jig RCU PTU94023B	Back tension cassette gauge PUJ48076-2
		
Alignment tape (SP, stairstep, PAL) MHPE	Alignment tape (LP, stairstep, PAL) MHPE-L	
		

3.1.4 Color (colour) bar signal, color (colour) bar pattern

• Color(colour) bar signal [PAL]

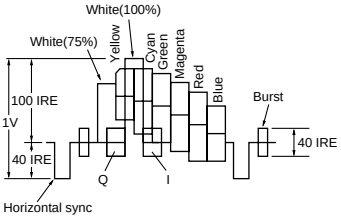


• Color(colour) bar pattern [PAL]

(75%)

White	Yellow	Cyan	Green	Magenta	Red	Blue
V	U	White 100%			Black	

• Color(colour) bar signal [NTSC]



• Color(colour) bar pattern [NTSC]

(75%)

White	Yellow	Cyan	Green	Magenta	Red	Blue
Q	White 100%	I	Black			

3.1.5 Switch settings

When adjusting this unit, set the VCR mode and switches as described below.

- When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). (See "section 1 disassembly".)

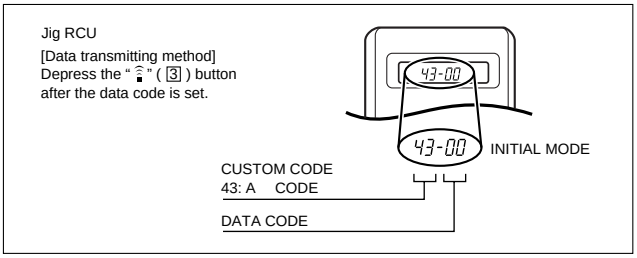


Fig. 3-1-5a Jig RCU [PTU94023B]

- Set the switches as shown below unless otherwise specified on the relevant adjustment chart. The switches that are not listed below can be set as desired.
  If the VCR is not equipped with the functions detailed below, setup is not required.

AUTO PICTURE/VIDEO CALIBRATION/ B.E.S.T./D.S.P.C.	OFF
PICTURE CONTROL/SMART PICTURE	NORMAL/NATURAL
VIDEO STABILIZER	OFF
TBC	ON
Digital 3R	ON
VIDEO NAVIGATION/TAPE MANAGER	OFF
BLUE BACK	OFF

3.1.6 Manual tracking mode (Auto tracking ON/OFF) setting

(1) In order to set to the manual tracking mode during tape playback, press the “SP/EP(LP)” button on the remote control unit.
  • Each press of the button switches the auto tracking ON or OFF.
  • When the auto tracking is OFF, the monitor screen displays “AT: OFF”.
  • When the manual tracking mode is set, the tracking is placed at the center position.
(2) Press “channel +/-” to adjust the tracking manually.

3.2 Mechanism compatibility adjustment

Notes:
- ***Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the A/C head, drum assembly or any part of the tape transport system.***
- ***To prevent damaging the alignment tape in the compatibility adjustment, prepare a cassette tape (for self-recording/playback), perform a test on it by transporting it and making sure that the tape is not bent by the tape transport mechanisms such as in the guide rollers.(See Fig.3-2-2a.)***

3.2.1 Tension pole position

Notes:
- ***This adjustment must be performed every time the tension band is replaced.***

Signal	(A)	• Back tension cassette gauge [PUJ48076-2]
Mode	(B1)	• PB
	(B2)	• Eject end
Adjustment part	(F)	• Adjust pin [Mechansim assembly]
Specified value	(G)	• 25 - 51 gf•cm (2.45 – 5 × 10^{-3} Nm)

(1) Play back the back tension cassette gauge (A).
(2) Check that the indicated value on the left side gauge is within the specified value (G).
(3) If the indicated value is not within the specified value (G), perform the adjustment in a following procedure.(See Fig.3-2-1a.)
  1) Remove the top frame, cassette holder and side frames (L/R) all together. (See “section 2 mechanism”.)
  2) Rotate the loading motor gear to move the control plate so that the triangular stamping to the left of the “P” stamping is aligned with the stamping (a) on the main deck. This positioning is mode (B1).
  3) Adjust by turning the adjustment pin so that the tip of the tension arm is aligned with the stamping (b) on the main deck.
  4) Rotate the reel disk (S) by about one turn clockwise and make sure that the round hole of the adjustment pin is located in the “OK” range.
  If it is outside this range, restart the adjustment from the beginning.
  After completion of the adjustment, rotate the loading gear motor to return it to the mode (B2) position.

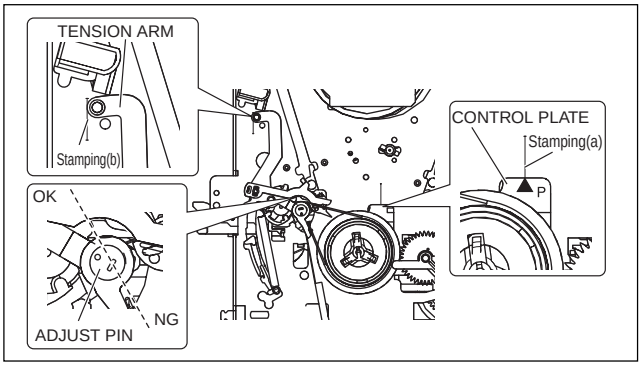


Fig. 3-2-1a

3.2.2 FM waveform linearity

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, PAL) [MHPE] • Alignment tape(LP, stairstep, PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Guide roller [Mechanism assembly]
Specified value	(G)	• Flat V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Set the VCR to the manual tracking mode.
(4) Make sure that there is no significant level drop of the V.PB FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (See Fig. 3-2-2b.)
(5) Reduce the V.PB FM waveform by the tracking operation. If a drop in level is found on the left side, turn the guide roller of the pole base assembly (supply side) with the roller driver to make the V.PB FM waveform linear.
If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the roller driver to make it linear. (See Fig. 3-2-2b.)
(6) Make sure that the V.PB FM waveform varies in parallel and linearly with the tracking operation again. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
(7) Unload the cassette tape once, play back the alignment tape (A1) again and confirm the V.PB FM waveform.
(8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits. (See Fig. 3-2-2a.)

[Perform adjustment step (9) only for the models equipped with SP mode and EP (or LP) mode.]

(9) Repeat steps (1) to (8) by using the alignment tape (A2).

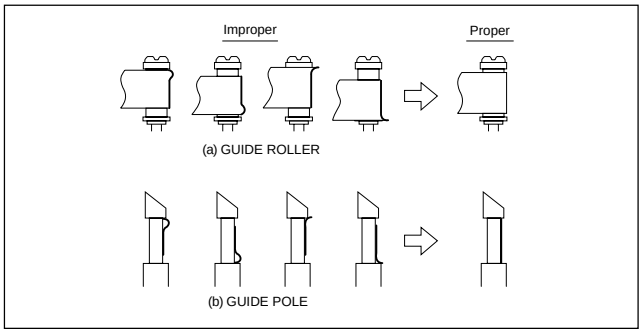


Fig. 3-2-2a

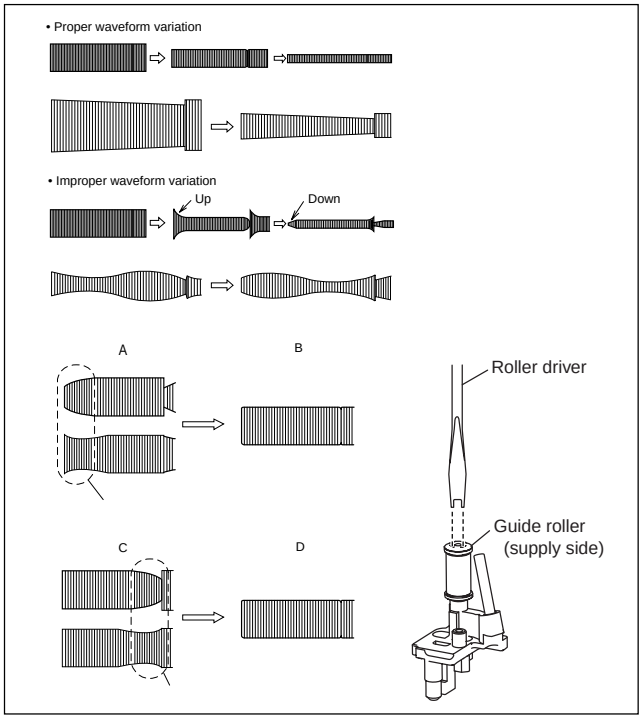


Fig. 3-2-2b

3.2.3 Height and tilt of the A/C head

Note:

• Set a temporary level of the height of the A/C head in advance to make the adjustment easier after the A/C head has been replaced. (See "section 2 mechanism".)

Signal	(A)	• Alignment tape(SP, stairstep, PAL) [MHPE]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• AUDIO OUT terminal • TP4001 (CTL. P)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head [Mechanism assembly]
Specified value	(G)	• Maximum waveform

(1) Play back the alignment tape (A).
(2) Apply the external trigger signal to D.FF (E), to observe the AUDIO OUT waveform and Control pulse waveform at the measuring points (D1) and (D2) in the ALT mode.
(3) Set the VCR to the manual tracking mode.
(4) Adjust the AUDIO OUT waveform and Control pulse waveform by turning the screws (1), (2) and (3) little by little until both waveforms reach maximum. The screw (1) and (3) are for adjustment of tilt and the screw (2) for azimuth.

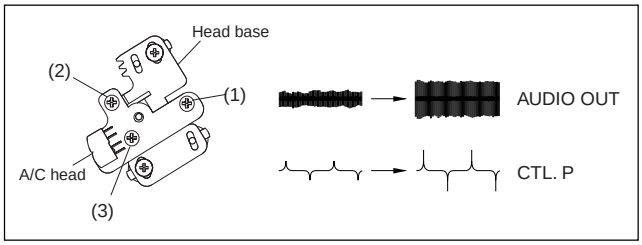


Fig. 3-2-3a

3.2.4 A/C head phase (X-value)

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, PAL) [MHPE] • Alignment tape(EP, stairstep, PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head base [Mechanism assembly]
Specified value	(G)	• Maximum V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Set the VCR to the manual tracking mode.
(4) Loosen the screws (4) and (5), then set the Roller driver to the innermost projected part of the A/C head. (See Fig. 3-2-4a.)
(5) Rotate the roller driver so that the A/C head comes closest to the capstan. From there, move the A/C head back gradually toward the drum until the point where the FM waveform is maximized for the second time, and then tighten the screws (4) and (5) temporarily.
(6) Play an alignment tape (A2) and set to the manual-tracking mode.
(7) Fine-adjust A/C head base position to maximize the FM waveform, and then tighten the screws (4) and (5) firmly.
(8) Play alignment tapes (A1) and (A2) and confirm that the FM waveforms are maximized when the tracking is at the center position.

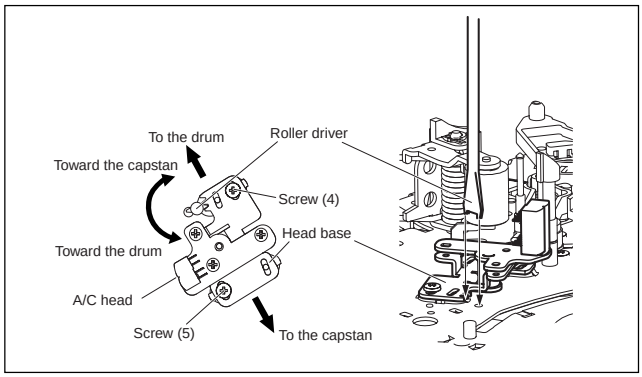


Fig. 3-2-4a

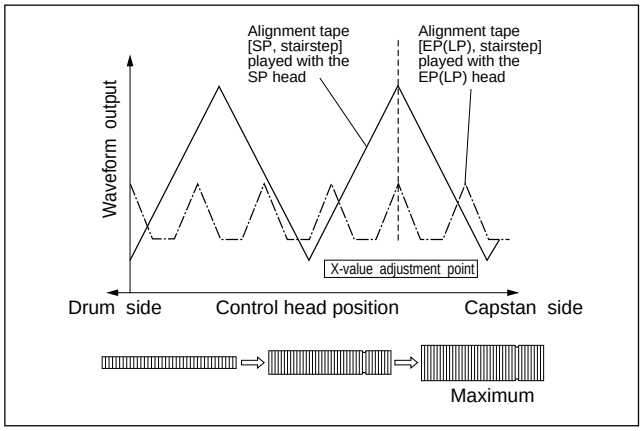


Fig. 3-2-4b

3.3 Electrical adjustment

Note:
The following adjustment procedures are not only necessary after replacement of consumable mechanical parts or board assemblies, but are also provided as references to be referred to when servicing the electrical circuitry.
In case of trouble with the electrical circuitry, always begin a service by identifying the defective points by using the measuring instruments as described in the following electrical adjustment procedures. After this, proceed to the repair, replacement and/or adjustment. If the required measuring instruments are not available in the field, do not change the adjustment parts (variable resistor, etc.) carelessly.

3.3.1 Servo circuit

3.3.1.1 Switching point

Signal	(A1) (A2)	• Stairstep signal • Alignment tape (LP,stairstep,PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• VIDEO OUT terminal (75Ω terminated) • TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Jig RCU: Code “5A”
Specified value	(G)	• 6.5 ± 0.5H
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Play back the signal (A1) of the alignment tape (A2).
(2) Apply the external trigger signal to D.FF (E) to observe the VIDEO OUT waveform and V.PB FM waveform at the measuring points (D1) and (D2).
(3) Set the VCR to the manual tracking mode.
(4) Adjust tracking so that the V.PB FM waveform becomes maximum.
(5) Set the VCR to the Auto adjust mode by transmitting the code (F) from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed.
(6) If the VCR enters the eject mode, repeat steps (1) to (5) again.
(7) Play back the alignment tape (A2) again, confirm that the switching point is the specified value (G).

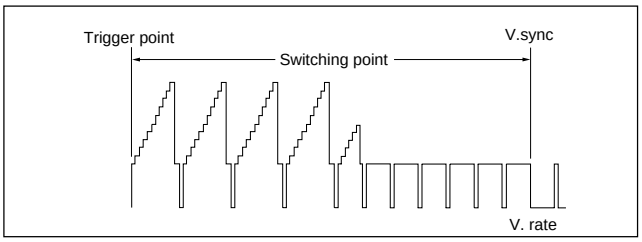


Fig. 3-3-1-1a Switching point

3.3.1.2 Slow tracking preset

Signal	(A1) (A2) (A3)	• Ext. input • Color (colour) bar signal [PAL] • Color (colour) bar signal [NTSC]
Mode	(B1) (B2) (B3) (B4)	• VHS SP] (PAL) • VHS LP • VHS SP] (NTSC) • VHS EP
Measuring point	(D)	• TV-Monitor
Adjustment part	(F)	• Jig RCU: Code “71“ or “72”
Specified value	(G)	• minimum noise
Adjustment tool	(H)	• Jig RCU [PTU94023B]

[FOR 4 HEAD MODELS]

(1) Record the signal (A2) in the mode (B1), and play back the recorded signal.
(2) Set the VCR to the manual tracking mode.
(3) Set the VCR to the FWD slow (+1/6x) mode.
(4) Transmit the code (F) from the Jig RCU to adjust so that the noise bar becomes the specified value (G) on the TV monitor in the slow mode.
(5) Set the VCR to the Stop mode.
(6) Confirm that the noise bar is (G) on the TV monitor in the slow mode.
(7) Repeat steps (3) to (6) in the REV slow (–1/6x) mode.
(8) Repeat steps (1) to (7) in the mode (B2).
(9) Record the signal (A3) in the mode (B3), and play back the recorded signal.
(10) Repeat steps (2) to (7)
(11) Repeat steps (9) and (10) in the mode (B4).

[FOR 2 HEAD MODELS]

(1) Record the signal (A2) in the mode (B2), and play back the recorded signal.
(2) Set the VCR to the manual tracking mode.
(3) Set the VCR to the FWD slow (+1/6x) mode.
(4) Transmit the code (F) from the Jig RCU to adjust so that the noise bar becomes the specified value (G) on the TV monitor in the slow mode.
(5) Set the VCR to the Stop mode.
(6) Confirm that the noise bar is (G) on the TV monitor in the slow mode.
(7) Repeat steps (3) to (6) in the REV slow (–1/6x) mode.
(8) Record the signal (A3) in the mode (B4), and play back the recorded signal.
(9) Repeat steps (2) to (7).

Note:

- ***For FWD slow (+1/6x) playback, transmit the code “08” from the Jig RCU to enter the slow playback mode, and transmit the code “D0” for REV slow (–1/6x) mode.***

3.3.2 Syscon circuit [Timer recording model]

Note:

- ***When perform this adjustment, remove the Mechanism assembly.***

3.3.2.1 Micom sub clock

Signal	(A)	• No signal
Mode	(B)	• EE
Equipment	(C)	• Frequency counter
Measuring point	(D1)	• IC3001 pin 29
Short point	(D2)	• IC3001 pin 32
	(D3)	• IC3001 pin 31
	(D4)	• IC3001 pin 25
Adjustment part	(F)	• C3042
Specified value	(G)	• 1024.008±0.001 Hz • (976.554±0.001µ sec)

(1) Connect the frequency counter to the measuring point (D1).
(2) Connect the short wire between the short point (D2) and GND.
(3) Connect the short wire between the short point (D3) and GND.
(4) Connect the short wire between the short point (D4) and GND in order to reset the microprocessor of the SYSCON.
(5) Release the short wire between the short point (D2) and GND.
(6) Adjust the adjustment part (F) so that the output frequency becomes the specified value(G).

JVC

VICTOR COMPANY OF JAPAN, LIMITED
AV & MULTIMEDIA COMPANY VIDEO RECORDER CATEGORY 12,3-chome,Moriya-cho,Kanagawa-ku,Yokohama,Kanagawa-prefecture,221-8528,Japan

Printed in Japan
VP

CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

1) All resistance values are in ohm. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in µF, (P: PF).
3) All inductance values are in µH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

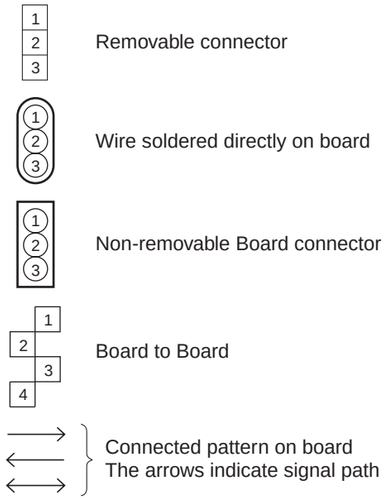
Note: The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.

2. Indications of control voltage

AUX : Active at high.

$\overline{\text{AUX}}$ or AUX(L) : Active at low.

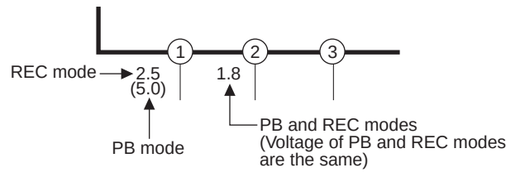
3. Interpreting Connector indications



Note: For the destination of each signal and further line connections that are cut off from the diagram, refer to "BOARD INTERCONNECTIONS"

4. Voltage measurement

1) Regulator (DC/DC CONV) circuits
   REC : Colour bar signal.
   PB : Alignment tape (Colour bar).
   — : Unmeasurable or unnecessary to measure.
2) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.

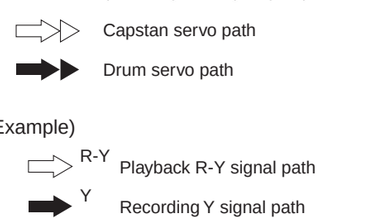


Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Signal path Symbols

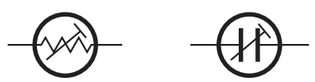
The arrows indicate the signal path as follows.

NOTE : The arrow is DVC unique object.



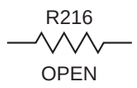
6. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



7. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.



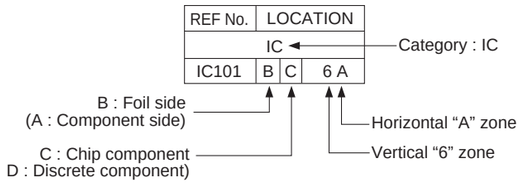
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

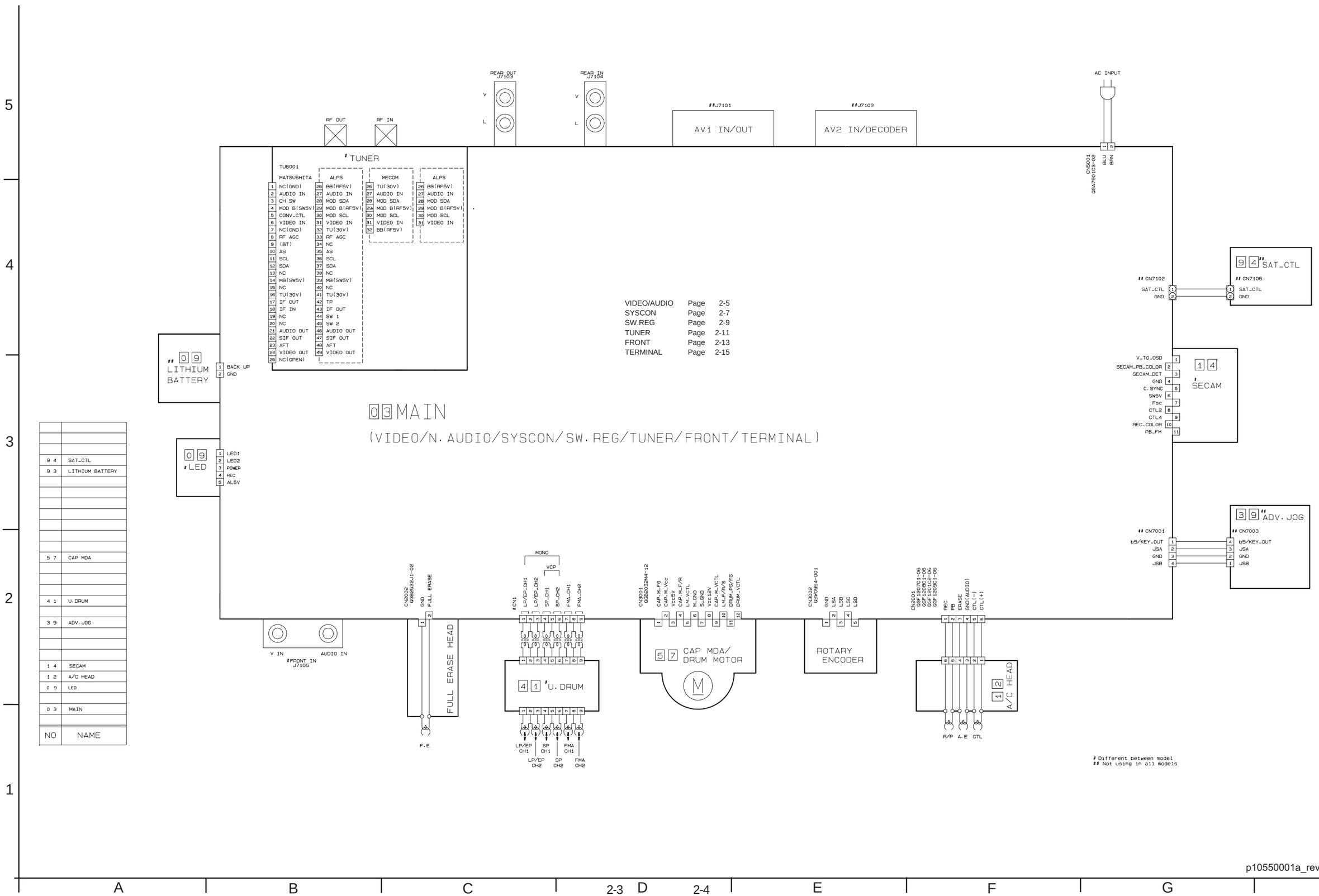
2. Parts location guides

Parts location are indicated by guide scale on the circuit board.



Note: For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

■ BOARD INTERCONNECTIONS



03 MAIN

(VIDEO/N.AUDIO/SYSCON/SW.REG/TUNER/FRONT/TERMINAL)

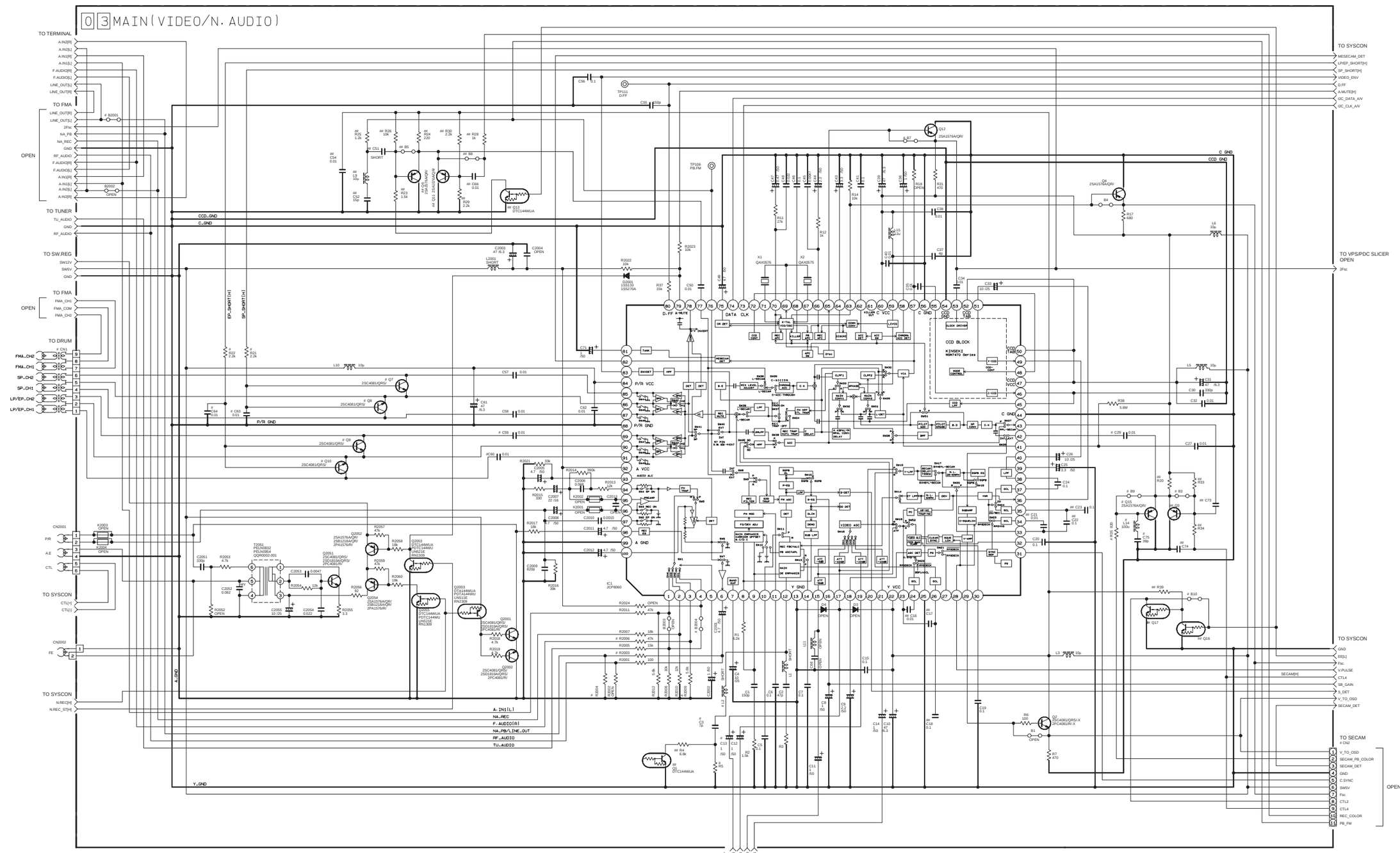
VIDEO/AUDIO	Page 2-5
SYSCON	Page 2-7
SW.REG	Page 2-9
TUNER	Page 2-11
FRONT	Page 2-13
TERMINAL	Page 2-15

NO	NAME
94	SAT_CTL
93	LITHIUM BATTERY
57	CAP MDA
41	U.DRUM
39	ADV.JOG
14	SECAM
12	A/C HEAD
09	LED
03	MAIN

Different between model
Not using in all models

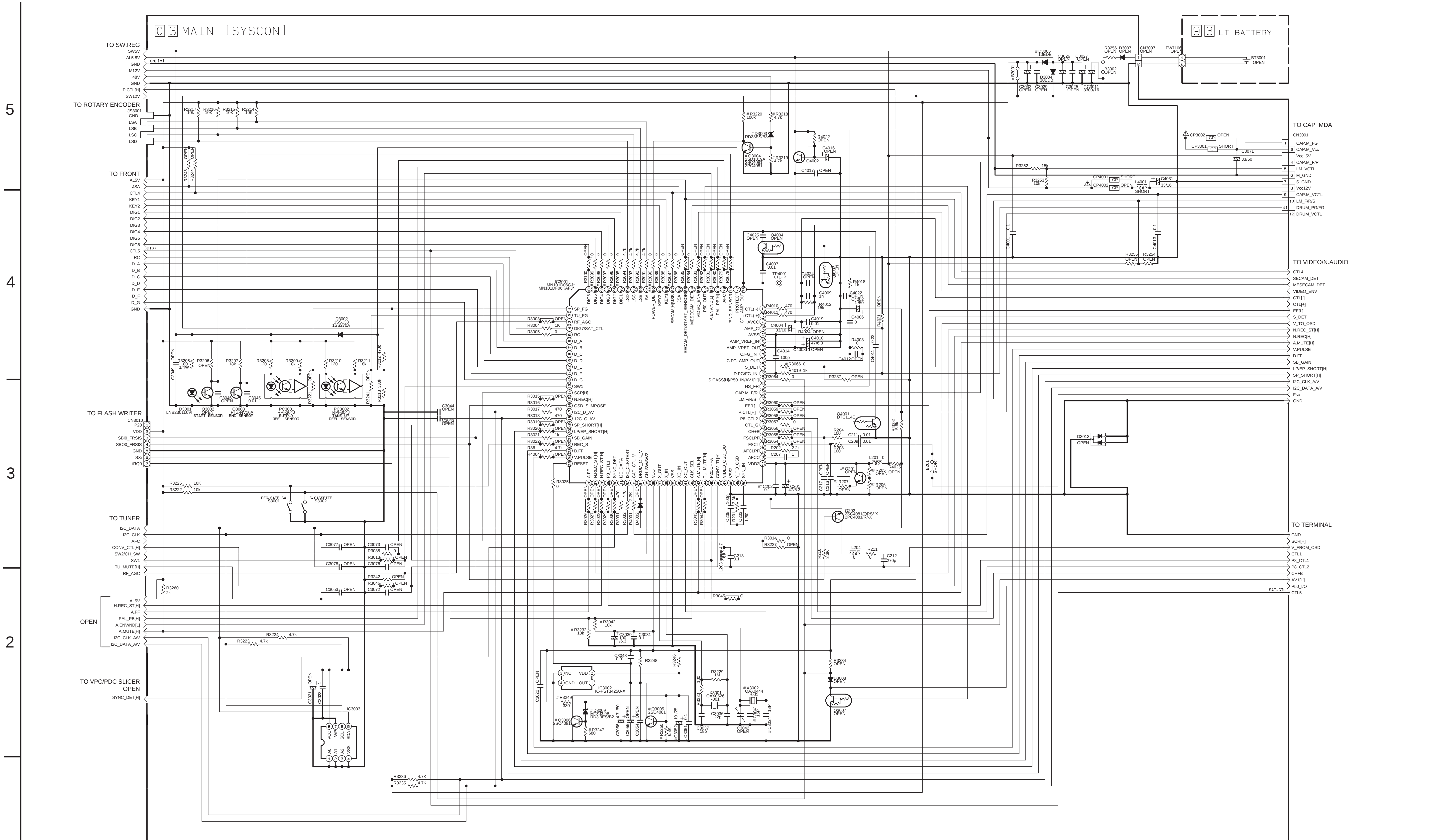
p10550001a_rev0

■ MAIN(VIDEO/N.AUDIO) SCHEMATIC DIAGRAM



p10538001a_rev0

■ MAIN(SYSCON) SCHEMATIC DIAGRAM



03 MAIN [SYSCON]
93 LT BATTERY
TO SW.REG
SW5V
AL5.8V
GND
M12V
48V
GND
P.CTL[H]
SW12V
TO ROTARY ENCODER
JS3001
GND
LSA
LSB
LSC
LSD
TO FRONT
AL5V
JSA
CTL4
KEY1
KEY2
DIG1
DIG2
DIG3
DIG4
DIG5
DIG6
CTL5
RC
D_A
D_B
D_C
D_D
D_E
D_F
D_G
GND
TO FLASH WRITER
CN3010
P20
VDD
SBI0_FRSIS
SBO0_FRSIS
GND
SXi
iRQ0
TO TUNER
I2C_DATA
I2C_CLK
AFC
CONV_CTL[H]
SW2/CH_SW
SW1
TU_MUTE[H]
RF_AGC
OPEN
AL5V
H.REC_ST[H]
A.FF
PAL_PB[H]
A.ENV/ND[L]
A.MUTE[H]
I2C_CLK_A/V
I2C_DATA_A/V
TO VPC/PDC SLICER
OPEN
SYNC_DET[H]
IC3001
MN101D06GJ*
MN101DF06KAFJ*
IC3002
IC-PST3425U-X
IC3003
D3001 LNB2301L0VI
Q3002 OPEN START SENSOR
Q3003 PTZ-NV16A END SENSOR
PC3001 RPI-304J SUPPLY REEL SENSOR
PC3002 RPI-304J TAKE UP REEL SENSOR
REC.SAFE.SW S3001
S.CASSETTE S3002
TO CAP_MDA
CN3001
CAP.M_FG
CAP.M_Vcc
Vcc_5V
CAP.M_F/R
LM_VCTL
M_GND
S_GND
Vcc12V
CAP.M_VCTL
LM_F/R/S
DRUM_PG/FG
DRUM_VCTL
TO VIDEO/N.AUDIO
CTL4
SECAM_DET
MESECAM_DET
VIDEO_ENV
CTL[-]
CTL[+]
EE[L]
S_DET
V_TO_OSD
N.REC_ST[H]
N.REC[H]
A.MUTE[H]
V.PULSE
D.FF
SB_GAIN
LP/EP_SHORT[H]
SP_SHORT[H]
I2C_CLK_A/V
I2C_DATA_A/V
Fsc
GND
TO TERMINAL
GND
SCR[H]
V_FROM_OSD
CTL1
P8_CTL1
P8_CTL2
CH+B
AV1[H]
P50_I/O
SAT_CTL
CTL5

#DIFFERENT TABLE 1

FEATURE		W/O BACK UP	W/ BACK UP
BACK UP 5V	B3001	○	×
	D3005 C3011 C3030	×	○
P. DETECT	R3218 R3219 R3220 D3003 Q3004 R3090	×	○
SUB CLOCK	X3002 C3024 C3041	×	○
CLK SEL	R3042	○	×
	R3232	×	○
RESET IC	IC3002 C3052	×	○
RESET CCT	Q3005 Q3006 D3009 R3247 R3249 R3250	○	×

#DIFFERENT TABLE 2

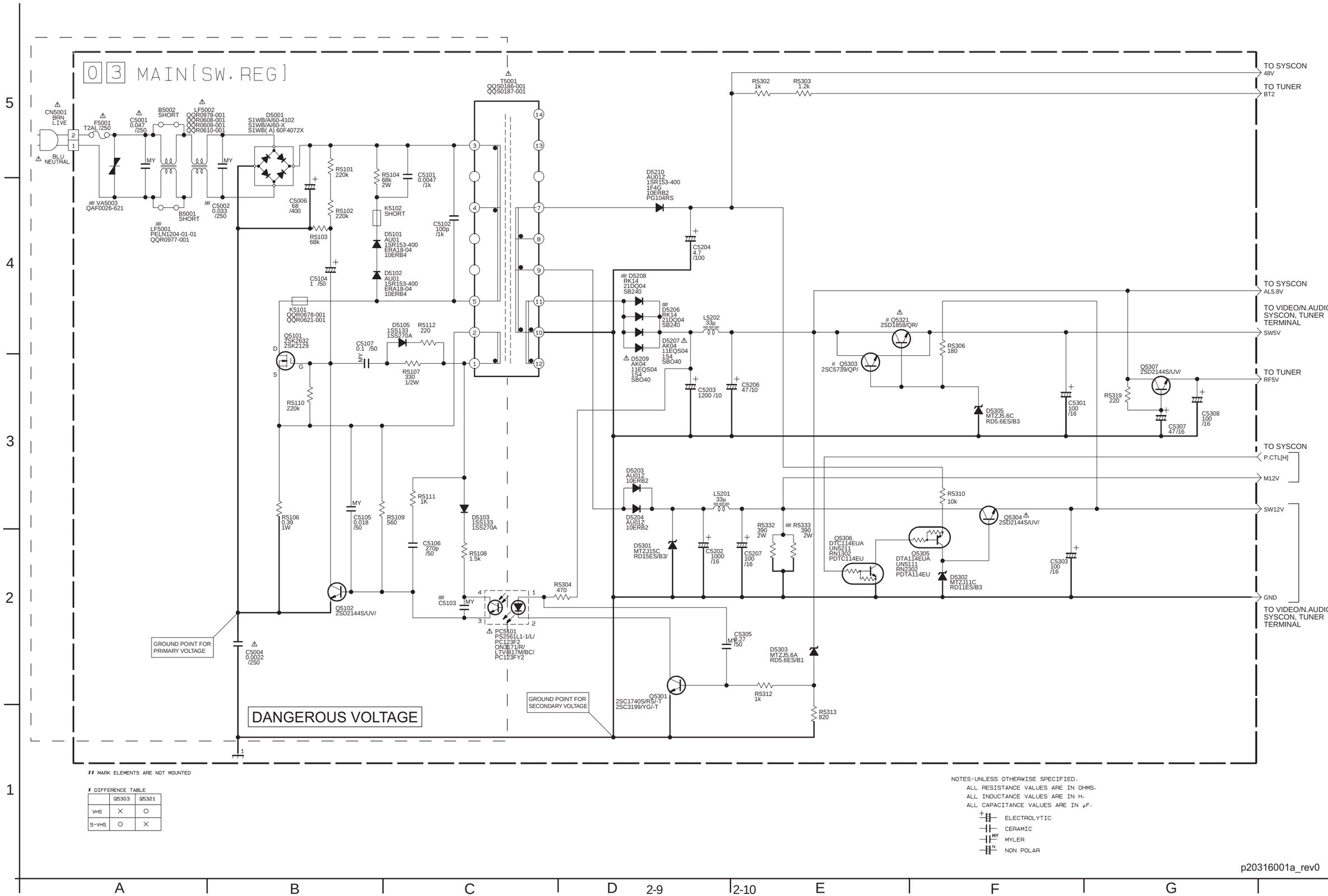
FEATURE		HR-V400AG & SERIES	HR-P57AG & SERIES	HR-V200AG & SERIES	HR-V207AG
7 SEGMENT DISPLAY	R3095 R3096 R3097 R3098 R3099	○	×	○	○
SECAM	R3087	×	×	×	○
SQPB	R3066	○	×	×	×

NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

- ELECTROLYTIC
- CERAMIC
- MYLER
- NON POLAR

p10544001a_rev0

■ MAIN(SW.REG) SCHEMATIC DIAGRAM



MARK ELEMENTS ARE NOT MOUNTED

DIFFERENCE TABLE

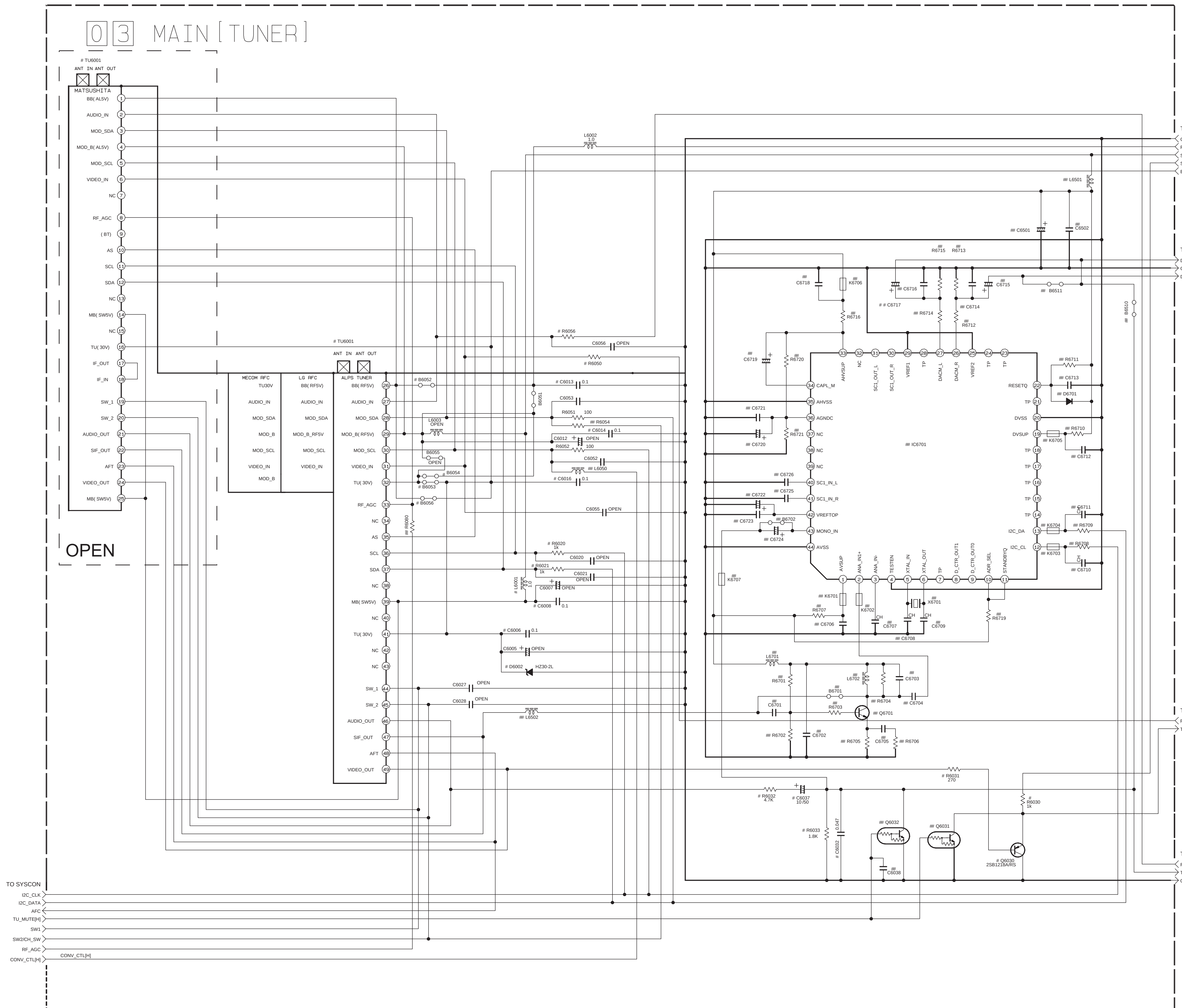
	Q5303	Q5321
VHS	×	○
S-VHS	○	×

NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

+ ELECTROLYTIC
CERAMIC
MY MYLER
N NON POLAR

p20316001a_rev0

■ MAIN(TUNER) SCHEMATIC DIAGRAM



DIFFERENCE TABLE

TUNER/RFC UNIT	TU6001	P1/P11 LG RFC QAU0290	P1/P11 MECOM RFC QAU0330	A1/C1 ALPS TUNER QAU0261
TU30V	B6053	○	×	○
	B6056	×	○	×
	D6002	×	○	○
	C6006	×	×	○
	C6016	×	×	○
RF 5V	B6052	○	×	○
	B6054	×	○	×
	C6013	×	×	○
	C6014	×	×	○
SW5V	L6001	×	×	○
	C6008	×	×	○
RF AUDIO	R6056	SHORT	SHORT	10Ω
RF VIDEO	R6050	SHORT	SHORT	10Ω
IIC CLK	R6020	×	×	○
IIC DATA	R6021	×	×	○
AUDIO DEEMPHASIS	R6032	×	×	○
	R6033	×	×	○
	C6037	×	×	○
	C6032	×	×	○
TU VIDEO	R6030	×	×	○
	R6031	×	×	○
	Q6030	×	×	○

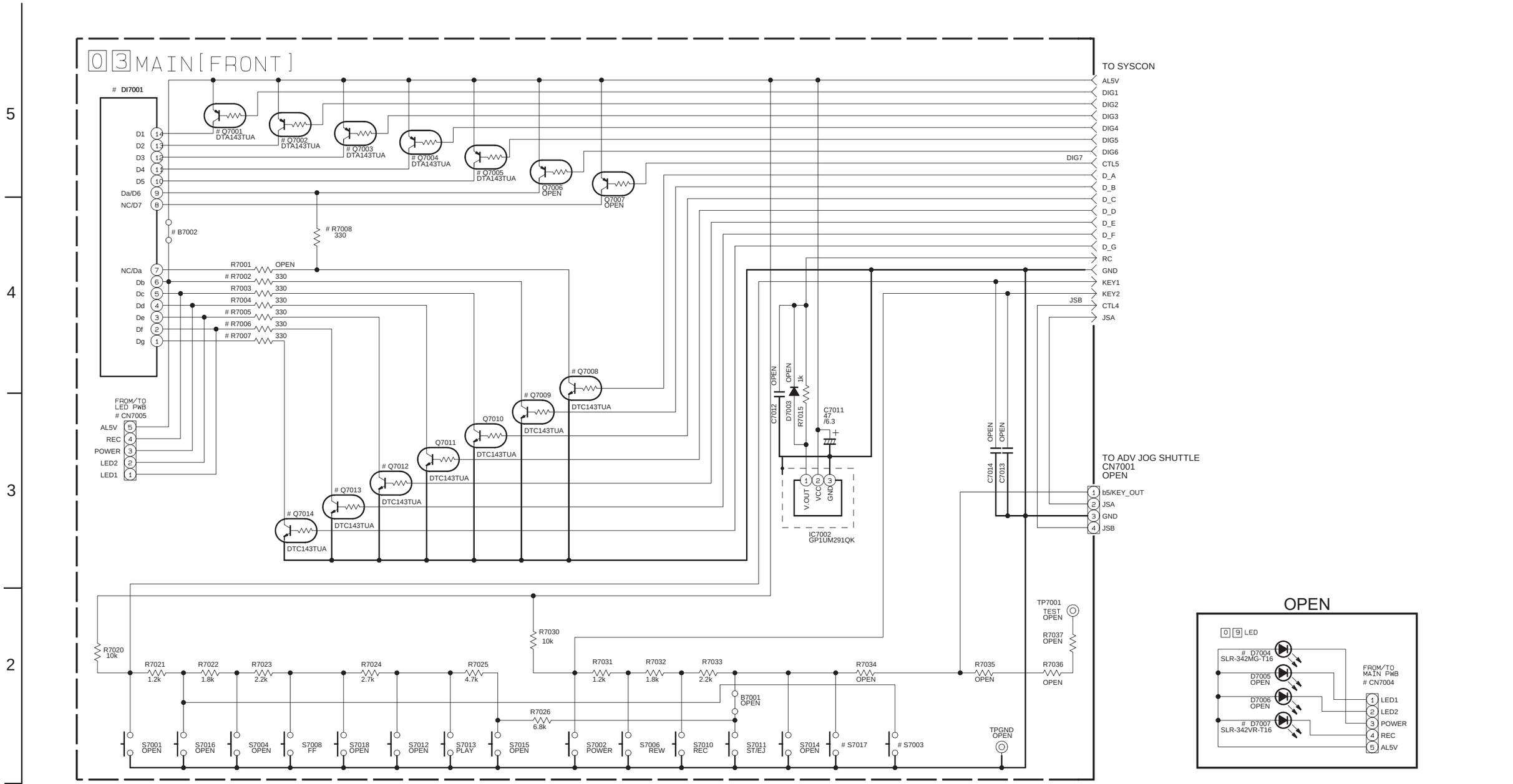
COMPONENTS ARE NOT MOUNTED IN ANY MODELS

NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p10537001a_rev0

■ MAIN(FRONT) SCHEMATIC DIAGRAM



#DIFFERENT TABLE 1

FEATURE		V400AG & SERIES	P57AG & SERIES	V200AG & SERIES	V200AG
DOT LED DISPLAY	D7004 D7007 CN7004 B7002 CN7005	×	○	×	×
7 SEGMENT LED DISPLAY	Q7001-Q7005 DI7001 Q7008-Q7009 Q7012-Q7014 R7002 R7005-R7008	○	×	○	○

#DIFFERENT TABLE 2

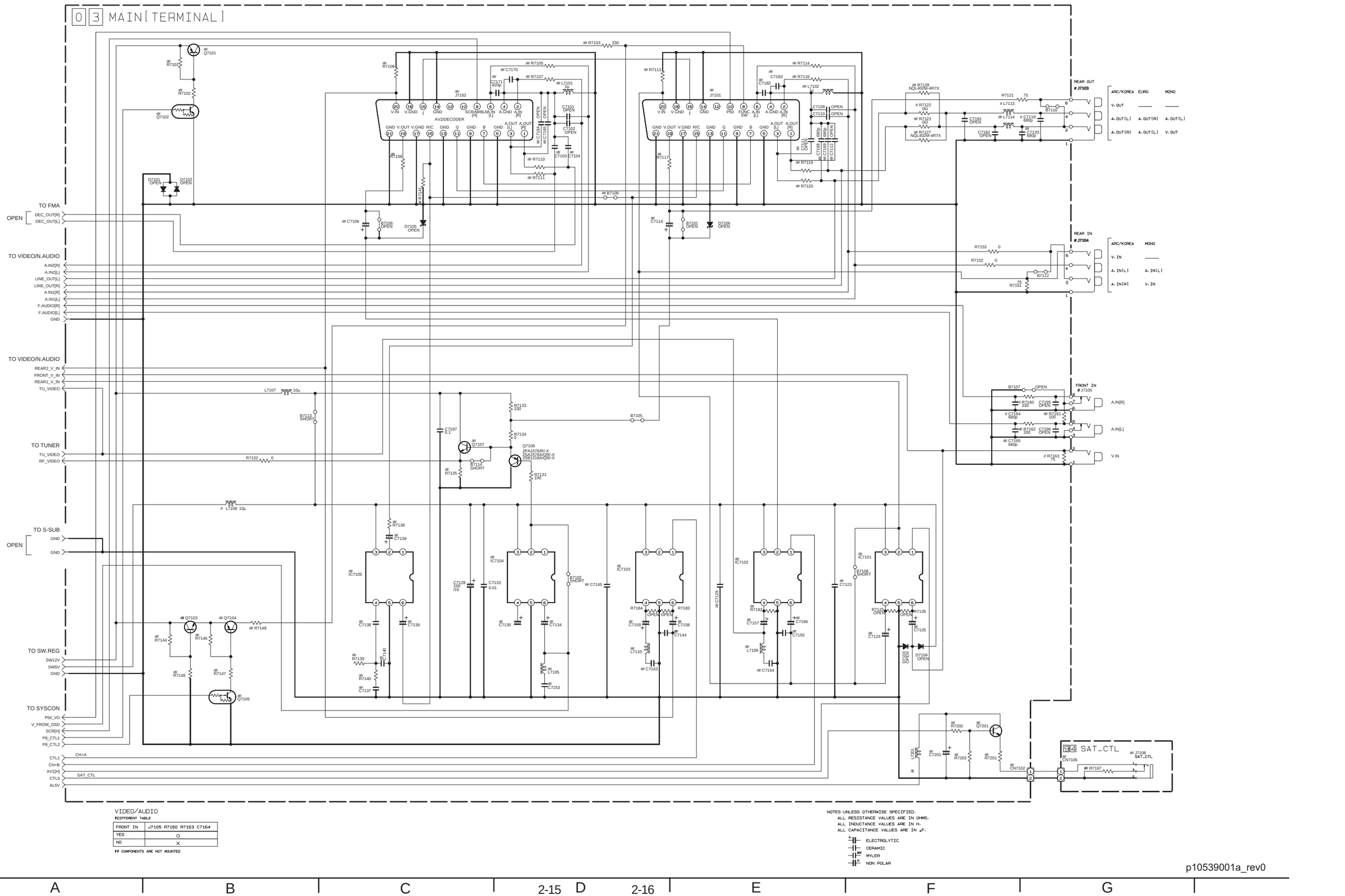
FUNCTION	V400AG. V200AG. V207AG. & SERIES	P57AG & SERIES
S7003	PR-	PICTURE SELECT
S7017	PR+	SP/LP/EP

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

+ ELECTROLYTIC
CERAMIC
MY MYLER
N NON POLAR

p20358001a_rev0

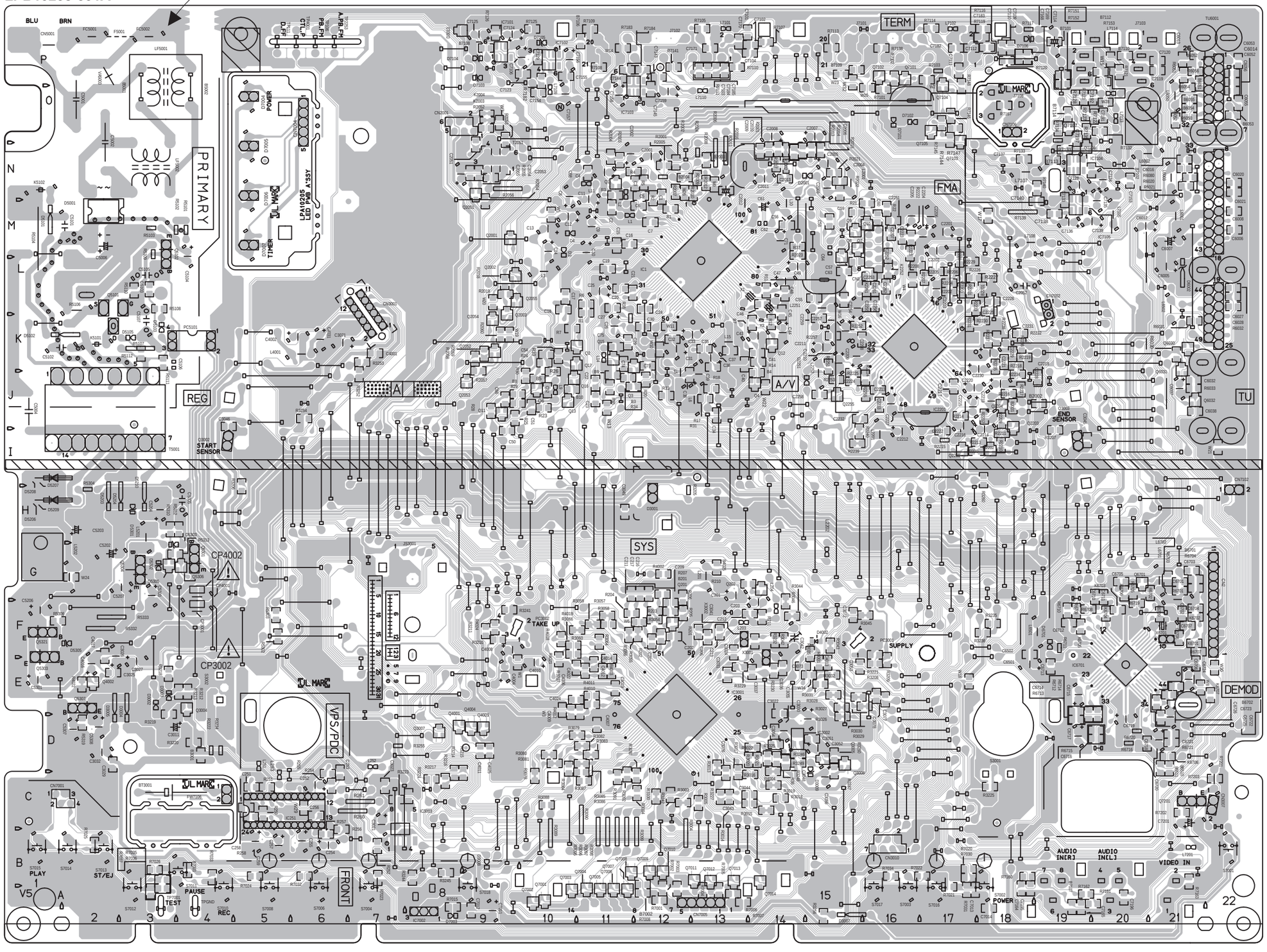
■ MAIN(TERMINAL) SCHEMATIC DIAGRAM



■ MAIN CIRCUIT BOARD

DANGEROUS VOLTAGE

<03> MAIN
LPB10205-001A



COMPONENT PARTS LOCATION GUIDE <MAIN> LPB10205-001A

REF.NO.	LOCATION
CAPACITOR	
C1	B C 12N
C2	B C 11M
C3	B C 12N
C4	A D 11N
C5	B C 12N
C6	B C 12M
C7	B C 12M
C8	A D 10M
C9	A D 11M
C10	A D 11M
C11	A D 11N
C12	A D 10M
C13	A D 10M
C14	A D 10M
C15	B C 11M
C16	B C 11M
C17	B C 10L
C18	B C 10L
C19	B C 11L
C20	B C 11L
C21	B C 11L
C22	B C 11J
C23	B C 11J
C24	B C 12L
C25	A D 11L
C26	A D 11K
C27	B C 11L
C29	B C 11K
C30	B C 12K
C31	A D 12K
C32	B C 12K
C33	A D 12K
C34	B C 13J
C35	B C 13K
C36	A D 13K
C37	B C 13K
C38	B C 12J
C39	A D 13J
C40	B C 13K
C41	B C 14K
C43	A D 14K
C44	A D 14K
C45	B C 14L
C46	B C 14L
C47	A D 14L
C48	B C 14L
C49	A D 14L
C50	B C 9I
C51	B C 10J
C52	B C 10J
C54	B C 10K
C55	B C 15L
C56	B C 14M
C57	B C 15L
C58	B C 15M
C59	B C 15M
C60	B C 16M
C61	A D 14M
C62	A D 14M
C63	B C 15L
C64	A D 15L
C66	B C 9J
C68	B C 11N
C71	A D 14M
C73	B C 12K
C74	B C 11K
C75	B C 11K
C201	A D 13G
C202	B C 12F
C203	A D 14F
C205	B C 13F
C206	B C 12F
C209	B C 12G
C211	B C 11G
C212	B C 14F
C213	B C 13F
C216	B C 12G
C217	B C 12G
C251	B C 5C
C252	A D 6C
C253	B C 6C
C254	A D 6B
C255	A D 6B
C256	B C 6C
C257	A D 5B
C258	B C 5C
C259	A D 5B
C2001	A D 12N
C2002	A D 11N
C2003	A D 15N
C2004	B C 15N
C2005	A D 15N
C2006	B C 15N
C2007	A D 15O
C2008	A D 14O
C2009	B C 14N
C2010	B C 14N
C2011	A D 14N
C2012	A D 13M
C2013	B C 14N
C2051	B C 9N
C2052	A D 19L
C2053	B C 9N
C2054	B C 9N
C2055	A D 8N
C2201	A D 17M
C2202	A D 17M
C2203	A D 17L
C2204	A D 17M
C2205	A D 16M
C2206	A D 17M
C2207	B C 16M
C2208	B C 15K
C2209	A D 15K
C2210	A D 15K
C2211	A D 15K
C2212	A D 16I
C2213	B C 16J
C2214	A D 18I
C2215	A D 17J
C2216	A D 17J
C2217	B C 17J
C2218	A D 18J
C2219	A D 18J
C2220	A D 17J
C2221	B C 18K
C2222	B C 17I
C2223	B C 16M
C2224	B C 15J
C2225	B C 18L
C2226	B C 18L
C2227	A D 16J
C2228	B C 19J
C2229	B C 18K
C2230	A D 17K
C2231	A D 18K
C2232	B C 15J
C2233	B C 16J
C2251	B C 16M
C2252	B C 16M
C2253	B C 16L
C2254	A D 15L
C2255	B C 16L
C2256	B C 16L
C2257	B C 15K
C2258	B C 15J
C2259	A D 15K
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C5101	A D 2M
C5102	A D 1K
C5103	B C 3L
C5104	A D 4M
C5105	A D 3L
C5106	A D 3J
C5107	A D 3L
C5202	A D 3G
C5203	A D 2H
C5204	A D 3H
C5206	A D 1F
C5207	A D 3G
C5301	A D 1E
C5303	A D 3G
C5305	A D 4H
C5307	A D 2D
C5308	A D 2D
C6005	A D 21L
C6006	B C 22M
C6007	A D 21M
C6008	B C 22M
C6012	A D 21M
C6013	B C 21P
C6014	B C 22P
C6016	B C 21N
C6020	B C 22N
C6021	B C 22N
C6027	B C 22L
C6028	B C 22L
C6032	B C 21J
C6037	A D 21J
C6038	B C 21J
C6052	B C 22O
C6053	B C 22P
C6055	B C 22O
C6056	B C 22P
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C6502	B C 18F
C6701	B C 21G
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C6703	B C 21G
C6704	B C 21F
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C6708	B C 21F
C6709	B C 21F
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C6712	B C 19F
C6713	B C 19E
C6714	B C 19E
C6715	A D 19E
C6716	B C 20D
C6717	A D 19D
C6718	B C 20D
C6719	A D 20D
C6720	A D 21D
C6721	B C 21D
C6722	A D 21E
C6723	B C 21E
C6724	A D 21E
C6725	B C 21D
C6726	B C 21E
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C7012	B C 9A
C7013	B C 17A
C7014	B C 18A
C7101	B C 13P
C7102	B C 14P
C7103	B C 13P
C7104	B C 14P
C7106	A D 10P
C7109	B C 18P
C7110	B C 18P
C7111	B C 17P
C7112	B C 17P
C7114	A D 19P
C7119	B C 21P
C7120	B C 21P
C7123	B C 10P
C7124	A D 9P
C7125	A D 9P
C7128	A D 19N
C7129	B C 10P
C7133	B C 19M
C7134	A D 20N
C7135	A D 20N
C7136	A D 19M
C7137	B C 18N
C7138	B C 19M
C7139	A D 20M
C7140	B C 19M
C7143	B C 12P
C7144	B C 11P
C7145	B C 12O
C7153	B C 20N
C7154	B C 10O
C7155	B C 10P
C7156	A D 10P
C7157	A D 10O
C7158	A D 11O
C7159	A D 12O
C7164	B C 18A
C7165	B C 19A
C7168	B C 18P
C7169	B C 18P
C7170	B C 13P
C7171	B C 13P
C7182	B C 17P
C7183	B C 18P
C7184	B C 13P
C7185	B C 13P
C7191	B C 20O
C7192	B C 20O
C7195	B C 18A
C7196	B C 20A
C7197	B C 19O
C7201	A D 21C
CONNECTOR	
CN1	A D 16M
CN2	A D 22F
CN2001	A D 9O
CN2002	A D 19L
CN3001	A D 7L
CN3007	A D 22C
CN3010	A D 16B
CN5001	A D 1P
CN7001	A D 1C
CN7004	A D 6O
CN7005	A D 13A
CN7102	A D 22H
CN7106	A D 18O
CP3001	A D 4F
CP3002	B C 4F
CP4001	A D 4G
CP4002	B C 4G
DIODE	
D3	A D 10M
D4	A D 11M
D2001	A D 15N
D2251	A D 15J
D3001	A D 12H
D3002	A D 3D
D3003	A D 3E
D3004	A D 3E
D3005	A D 2E
D3007	A D 16A
D3008	A D 9B
D3009	A D 15D
D3013	B C 8P
D4002	B C 15F
D5001	B C 2M
D5101	A D 1M
D5102	A D 2K
D5103	A D 3K
D5105	A D 3K
D5203	A D 2I
D5204	A D 3I
D5206	A D 2H
D5207	A D 2I
D5208	A D 2I
D5209	A D 2H
D5210	A D 3I
D5301	A D 3H
D5302	A D 3G
D5303	A D 4G
D5305	A D 2F
D6002	A D 21L
D6701	A D 19F
D7003	A D 8A
D7004	A D 5O
D7005	A D 5N
D7006	A D 5N
D7007	A D 5M
D7101	A D 16O
D7102	A D 17O
D7103	A D 9P
D7104	A D 9P
D7105	A D 10P
D7106	A D 18P
DI7001	A D 12A
IC	
IC1	B C 13L
IC251	A D 5C
IC2201	B C 16K
IC3001	B C 12D
IC3002	B C 14D
IC3003	B C 7B
IC6701	B C 20E
IC7002	A D 8A
IC7101	B C 9P
IC7102	B C 10P
IC7103	B C 12O
IC7104	B C 19N
IC7105	B C 19M
COIL	
L1	A D 12M
L2	A D 11M
L3	A D 10L
L5	A D 12K
L6	A D 13J
L9	A D 10J
L10	A D 14M
L11	A D 11N
L14	A D 11K
L15	A D 13K
L201	A D 13G
L203	A D 14F
L204	A D 14F
L251	A D 5C
L252	A D 7D
L253	A D 5C
L2001	A D 15N
L2201	A D 16J
L2202	A D 15G
L2251	A D 15L
L2252	A D 15K
L4001	A D 6K
L5201	A D 3H
L5202	A D 2G
L6001	A D 21M
L6002	A D 21N
L6003	A D 21N
L6050	A D 21O
L6501	A D 19F
L6502	A D 21L
L6701	A D 21G
L6702	A D 21G
L7101	A D 13P
L7102	A D 17P
L7105	A D 20M
L7107	A D 19N
L7108	A D 19M
L7109	A D 10O
L7110	A D 13O
L7113	A D 20O
L7114	A D 20O
L7201	A D 21B
LF5001	A D 4P
LF5002	A D 3N
PC3001	A D 15F
PC3002	A D 9F
PC04042	A D 21F
PC5101	A D 4K
TRANSISTOR	
Q1	B C 11N
Q2	B C 11K
Q3	B C 12K
Q4	B C 14J
Q6	B C 10J
Q7	B C 15M
Q8	B C 15M
Q9	B C 16M
Q10	B C 16M
Q11	B C 9J
Q12	B C 14K
Q13	B C 10J
Q15	B C 11K
Q16	B C 10J
Q17	B C 11K
Q201	B C 12F
Q202	B C 14G
Q2001	B C 9M
Q2002	B C 9L
Q2003	B C 9L
Q2051	B C 9N
Q2052	B C 9K
Q2053	B C 9J
Q2054	B C 9K
Q2055	B C 9L
Q2201	B C 17I
Q2202	B C 18I
Q2203	B C 18J
Q2204	B C 18J
Q2255	B C 15J
Q3002	A D 5I
Q3003	A D 19I
Q3004	B C 4E
Q3005	B C 15D
Q3006	B C 15D
Q3007	B C 8D
Q4001	B C 8D
Q4002	B C 2E
Q4003	B C 9D
Q4004	B C 9D
Q5101	A D 2L
Q5102	A D 3M
Q5301	A D 4G
Q5303	A D 1F
Q5304	A D 3G
Q5305	B C 3G
Q5306	B C 4G
Q5307	A D 2E
Q5321	A D 1F
Q6030	B C 21K
Q6031	B C 21K
Q6032	B C 21J
Q6701	B C 20G
Q7001	B C 10A
Q7002	B C 10A
Q7003	B C 10A
Q7004	B C 11A
Q7005	B C 11A
Q7006	B C 11A
Q7007	B C 11A
Q7008	B C 11B
Q7009	B C 12B
Q7010	B C 12B
Q7011	B C 13B
Q7012	B C 13B
Q7013	B C 13B
Q7014	B C 14B
Q7101	B C 16P
Q7102	B C 16P
Q7103	B C 17O
Q7104	B C 17P
Q7105	B C 17O
Q7106	B C 19N
Q7107	B C 19O
Q7201	A D 21C
RESISTOR	
R1	B C 12M
R2	B C 12N
R3	B C 11N
R4	B C 12N
R5	B C 12N
R6	B C 11L
R7	B C 10K
R11	B C 14L
R12	B C 14K
R14	B C 14K
R17	B C 13J
R18	B C 13K
R20	B C 12J
R21	B C 16M
R22	B C 16M
R23	B C 10J
R24	B C 10K
R25	B C 9J
R26	B C 10J
R28	B C 9J
R29	B C 9J
R30	B C 10J
R31	B C 13J
R33	B C 12J
R34	B C 12J
R35	B C 11J
R36	B C 14D
R37	B C 14M
R38	A D 11K
R39	B C 10K
R201	B C 13F
R202	B C 12F
R203	B C 12F
R204	B C 11F
R205	B C 12F
R206	B C 12G
R207	B C 12F
R210	B C 14G
R211	B C 14F
R251	B C 5C
R252	B C 7B
R254	B C 6C
R255	B C 6C
R256	B C 6B
R257	B C 6B
R258	B C 5C
R259	B C 5C
R260	A D 7C
R261	A D 7C
R2001	B C 12N
R2002	B C 12N
R2003	B C 11N
R2004	B C 11N
R2005	A D 12N
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R2007	B C 12N
R2008	B C 13N
R2009	B C 13N
R2010	B C 13N
R2011	A D 13N
R2012	B C 13N
R2013	B C 14N
R2014	B C 14N
R2015	B C 15N
R2016	B C 14N
R2017	B C 14N
R2018	B C 9L
R2019	B C 9L
R2021	B C 15N
R2022	B C 15N
R2023	B C 14M
R2024	A D 13N
R2052	B C 9O
R2053	B C 9O
R2054	B C 9M
R2055	B C 9N
R2056	A D 10N
R2057	B C 9K
R2058	B C 9K
R2059	B C 9K
R2060	B C 9K
R2201	B C 17L
R2202	B C 17L
R2203	B C 17L
R2204	B C 17L
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R2207	B C 17L
R2208	B C 16L
R2209	B C 18J
R2210	B C 18I
R2211	B C 18I
R2212	B C 18J
R2213	B C 18I
R2214	B C 17J
R2215	A D 17I
R2216	B C 18J
R2217	B C 18J
R2218	B C 18K
R2219	B C 18K
R2220	B C 17I
R2222	B C 16M
R2223	B C 16M
R2224	B C 16J
R2225	B C 15J
R2226	B C 17L
R2227	B C 18L
R2228	B C 17L
R2229	B C 17L
R2230	B C 18K
R2231	B C 17K
R2232	B C 18K
R2233	B C 17L
R2234	B C 18J
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R2237	B C 18K
R2238	B C 18K
R2239	B C 15I
R2240	B C 15I
R2251	B C 15K
R2252	B C 15K
R2253	B C 15J
R2255	B C 16J
R2257	B C 15K
R3003	B C 12C
R3004	A D 12B
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R3013	B C 13D
R3014	B C 13C
R3015	B C 14C
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R3018	B C 14C
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R3029	B C 16E
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R3032	B C 15E
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R3059	B C 11F
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R3066	B C 10F
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R3081	B C 10D
R3082	B C 11D
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R3090	A D 11B
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R3092	B C 11C
R3093	B C 12C
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R3096	A D 11B
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R3205	A D 12H
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R3207	B C 19I
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R3213	B C 4E
R3214	B C 8C
R3215	B C 9C
R3216	B C 8C
R3217	B C 8C
R3218	B C 3E
R3219	B C 3E
R3220	B C 4D
R3221	B C 16F
R3222	A D 4D
R3223	B C 7C
R3224	B C 8C
R3225	B C 18C
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R3232	B C 14F
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R3235	B C 18F
R3236	B C 18F
R3237	B C 11E
R3241	B C 9F
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R3248	B C 14D
R3249	B C 14D
R3250	B C 15D
R3252	B C 7J
R3253	B C 7K
R3254	B C 6J
R3255	A D 8D
R3256	B C 15A
R3260	B C 18I
R4001	B C 15E
R4002	B C 12G
R4003	B C 11E
R4004	B C 14D
R4010	B C 11E
R4011	B C 11E
R4012	B C 11E
R4018	B C 10F
R4019	B C 10F
R4021	B C 10E
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R4024	B C 9F
R4025	B C 13G
R5101	A D 4M
R5102	A D 4M
R5103	A D 3M
R5104	A D 1L
R5106	A D 2L
R5107	A D 3K
R5108	B C 3L
R5109	A D 3M
R5110	B C 3L
R5111	B C 3K
R5112	B C 3K
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R5303	B C 5F
R5304	A D 2H
R5306	B C 1F
R5310	B C 3H
R5312	B C 4H
R5313	B C 3G
R5319	B C 2D
R5332	A D 3F
R5333	A D 3F
R6020	B C 21N
R6021	B C 21N
R6030	B C 21K
R6031	B C 21K
R6032	B C 22L
R6033	B C 21J
R6050	B C 21O
R6051	B C 21P
R6052	B C 21O
R6054	B C 21O
R6055	B C 21P
R6056	B C 21P
R6080	B C 21N
R6701	B C 21G
R6702	B C 21G
R6703	B C 21G
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R7022	B C 17B
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R7024	B C 5B
R7025	B C 2B
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R7031	B C 17A
R7032	B C 6B
R7033	B C 4B
R7034	B C 16B
R7035	B C 3B
R7036	B C 3A
R7037	B C 3A
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R7102	B C 16P
R7103	A D 17P
R7105	B C 13P
R7106	B C 11P
R7108	B C 11P
R7109	B C 11P
R7110	B C 13P
R7111	B C 13P
R7113	B C 15P
R7114	B C 17Q
R7116	B C 18P
R7117	A D 19P
R7119	B C 18P
R7120	B C 18P
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R7122	B C 20O
R7123	B C 19O
R7125	B C 10P
R7126	B C 9P
R7127	B C 19O
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R7131	B C 19N
R7132	B C 20O
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R7135	B C 19O
R7138	B C 16P
R7139	A D 18M
R7140	B C 19N
R7141	B C 12P
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R7145	B C 17O
R7146	B C 17O
R7147	B C 17O
R7148	B C 17O
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R7152	B C 19P
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R7182	B C 10P
R7183	B C 11P
R7184	B C 12P
R7201	A D 22C
R7202	B C 21C
R7203	B C 22C
OTHER	
BT3001	A D 3C
F5001	A D 2P
FC5001	A D 2P
FC5002	A D 3P
FW7106	A D 4C
J7101	A D 16P
J7102	A D 12P
J7103	A D 21Q
J7104	A D 20Q
J7105	A D 20A
J7108	A D 19O
JS3001	A D 8G
K2001	B C 14N
K2002	B C 14N
K2003	B C 9O
K2004	B C 9O
K2251	B C 16L
K2252	B C 16L
K5101	A D 2K
K5102	A D 1N
K6701	B C 21F
K6702	B C 21F
K6703	B C 20F
K6704	B C 20F
K6705	B C 19F
K6706	B C 21D
K6707	B C 22E
S3001	A D 18C
S3002	A D 4E
S7001	A D 22B
S7002	A D 18B
S7003	A D 16B
S7004	A D 7B
S7006	A D 6B
S7008	A D 5B
S7010	A D 4B
S7011	A D 4B
S7012	A D 3B
S7013	A D 2B
S7014	A D 2B
S7015	A D 1B
S7016	A D 17B
S7017	A D 16B
S7018	A D 9B
T2051	A D 9N
T5001	A D 3I
TP106	A D 6P
TP111	A D 5P
TP2253	A D 6P
TP4001	A D 6P
TP7001	A D 3A
TPGND	A D 4A
TU6001	A D 22P
VA5003	A D 2O
X1	A D 14L
X2	A D 14K
X3001	A D 14E
X3002	A D 13F
X6701	A D 21F

VOLTAGE CHARTS

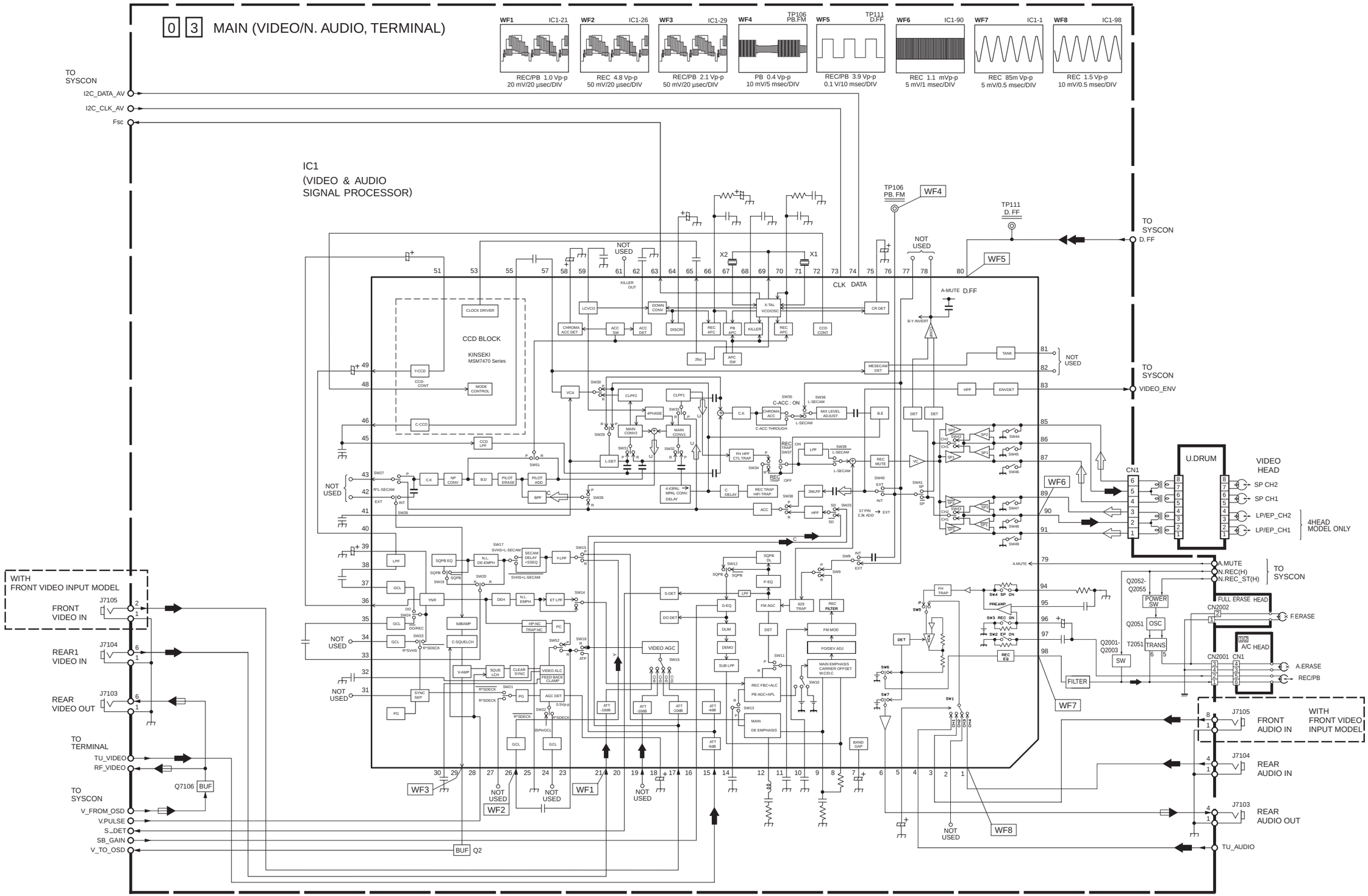
<MAIN>

MODE PIN NO.	REC	PLAY
IC1		
1	0	0
2	0.2	0
3	0	0
4	0	0
5	2.0	2.0
6	2.5	2.5
7	2.8	2.8
8	1.8	1.2
9	1.8	1.2
10	2.2	1.9
11	2.5	0
12	3.2	0.6
13	0	0
14	2.6	2.2
15	0	2.8
16	1.7	1.9
17	2.7	2.8
18	1.9	1.9
19	2.7	2.8
20	0	0
21	2.8	2.8
22	5.0	5.0
23	2.3	2.3
24	0.4	0.2
25	0	0
26	3.0	2.8
27	0.4	0.2
28	0	0
29	2.4	2.4
30	2.8	2.8
31	0.3	0
32	2.3	2.3
33	2.0	0
34	1.8	1.8
35	3.0	3.0
36	2.3	2.3
37	3.0	3.0
38	2.1	2.2
39	0	1.4
40	2.1	2.1
41	2.5	2.4
42	1.9	2.0
43	2.1	2.1
44	0	0
45	3.1	0
46	3.1	3.1
47	0	5.1
48	0	0
49	3.2	0
50	5.0	5.0
51	2.0	2.0
52	5.1	5.0
53	2.7	2.6
54	0	0
55	2.0	2.0
56	0	0
57	2.1	2.1
58	2.3	2.3
59	5.0	5.0
60	0	0
61	0	0
62	2.2	2.2
63	2.2	2.2
64	3.2	3.2
65	2.2	2.2
66	3.2	3.2
67	0.5	0.3
68	1.2	1.2
69	0	1.9
70	2.7	0
71	2.2	2.1
72	0	0
73	4.8	0
74	5.0	0
75	2.8	2.7
76	2.2	2.1
77	2.8	2.8
78	0	0
79	0	2.5
80	2.5	2.5
81	5.0	4.7
82	0	0
83	0	2.3
84	0	5.0
85	2.5	2.3
86	2.4	2.3
87	2.5	2.3
88	0	0
89	0	0
90	0	0
91	0	0
92	0	5.1
93	0.2	0.2
94	0	2.5
95	0	2.5
96	2.5	2.5
97	0	0

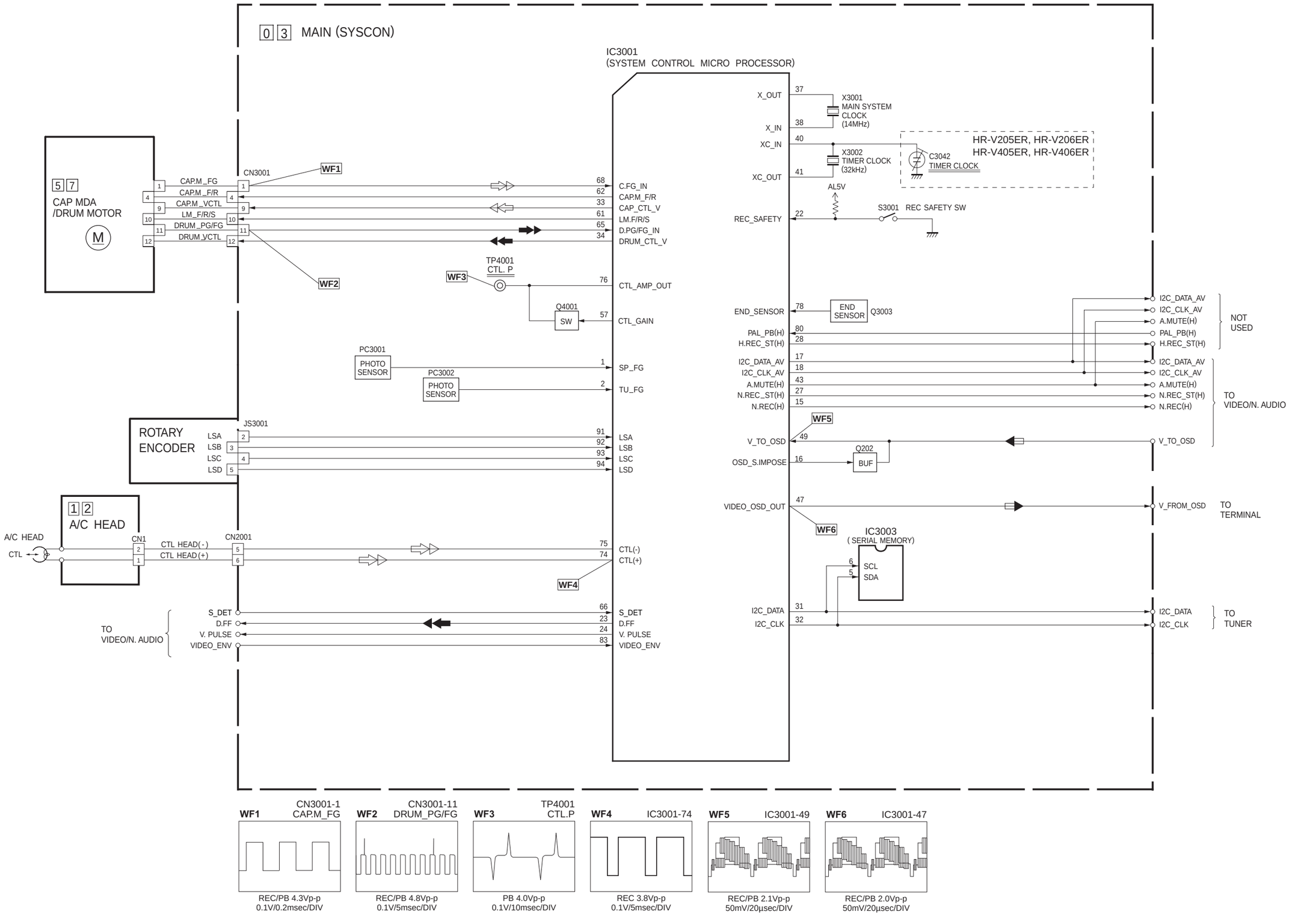
MODE PIN NO.	REC	PLAY
98	2.3	2.5
99	0	0
100	0	2.5
IC3001		
1	0	0
2	0	0
3	0.1	0.2
4	0	0
5	5.0	5.0
6	0	0
7	1.0	0.9
8	0.8	0
9	0	0
10	1.9	0
11	0.9	0
12	0.9	4.7
13	0	0
14	0	0
15	5.0	0
16	0	0
17	5.0	4.8
18	4.7	4.7
19	0	0
20	4.5	4.5
21	1.8	2.9
22	5.1	5.1
23	-	-
24	0	0
25	5.0	5.0
26	0	0
27	5.0	0
28	0	0
29	0	0
30	0	0
31	0	4.7
32	0	4.8
33	2.6	2.6
34	0	2.5
35	0	0
36	5.0	5.0
37	2.4	2.5
38	2.4	2.3
39	0	0
40	0	2.1
41	2.5	2.5
42	5.0	5.0
43	0	0
44	4.8	4.8
45	0	0
46	0	0
47	2.4	2.4
48	0	0
49	2.4	2.3
50	2.5	2.5
51	5.0	5.0
52	2.6	2.5
53	2.5	2.5
54	2.5	2.5
55	2.5	0
56	0	0
57	4.9	4.9
58	0	0
59	5.0	5.0
60	0	0
61	2.5	2.5
62	0	0
63	0	0
64	0	0
65	1.4	1.4
66	0	0
67	2.4	2.4
68	2.4	2.4
69	2.5	2.5
70	0	2.5
71	0	0
72	2.5	2.5
73	5.0	5.1
74	3.0	2.5
75	0	2.5
76	2.5	2.5
77	4.4	4.4
78	0	5.0
79	4.6	4.6
80	0	0
81	0	0
82	0	0
83	0	2.5
84	0	0
85	0	0
86	0	0
87	0	0
88	5.1	5.1
89	0	5.1
90	0	0
91	0	0
92	5.1	5.1
93	0	0
94	5.1	5.1

MODE PIN NO.	REC	PLAY
95	4.0	4.0
96	4.0	4.0
97	4.1	4.0
98	4.0	4.1
99	4.1	4.1
100	0	0
IC3002		
1	5.0	5.1
2	5.0	5.0
3	0	0
4	0	0
IC3003		
1	0	0
2	0	0
3	0	0
4	0	0
5	4.8	4.8
6	4.8	4.8
7	0	0
8	5.1	5.1
Q7		
E	2.4	2.3
C	2.3	2.3
B	0	0
Q6	-	-
Q8		
E	2.4	2.3
C	2.4	2.3
B	0	0
Q9		
E	0	0
C	0	0
B	0.7	0.7
Q10		
E	0	0
C	0	0
B	0.7	0.7
Q202		
E	0	2.4
C	0.5	0.5
B	0	0
Q2001		
E	-12.3	0
C	0	0
B	-18.9	0.7
Q2002		
E	-12.3	0
C	0	0
B	-18.7	0.7
Q2003		
E	5.0	5.1
C	-18.8	5.0
B	5.0	0
Q2051		
E	0	0
C	7.5	0.2
B	0.5	0.2
Q2052		
E	10.7	10.7
C	10.5	0.3
B	10.0	10.7
Q2053		
E	0	0
C	0	10.6
B	5.0	0
Q2054		
E	10.4	0.3
C	10.3	0.2
B	9.7	0.3
Q2055		
E	0	0
C	0	0.3
B	0.5	0
Q3003		
E	0

■ VIDEO/N.AUDIO BLOCK DIAGRAM



■ SYSTEM CONTROL BLOCK DIAGRAM



■ CPU PIN FUNCTION

<SYSCON IC3001>

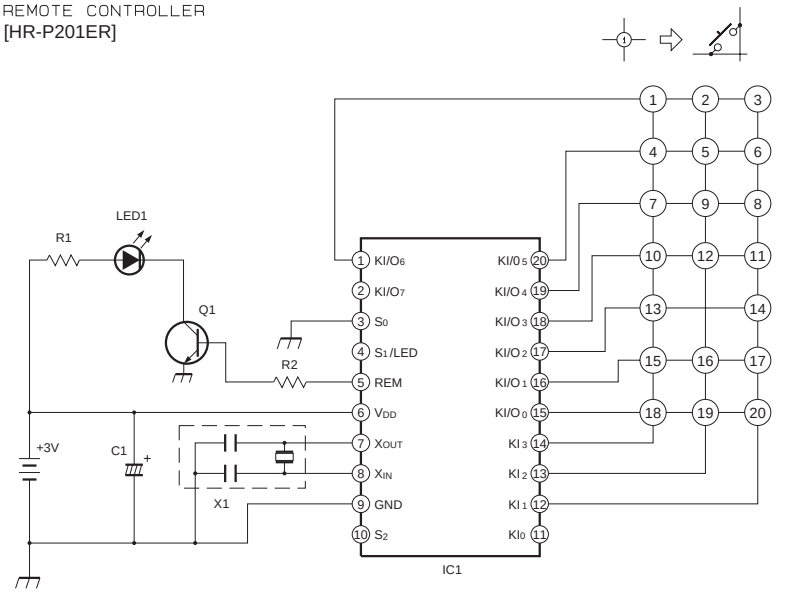
PIN NO.	LABEL	IN/OUT	FUNCTION
1	SP_FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
2	TU_FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
3	RF_AGC	IN	CHANGES IN ATS+IC OUTPUT AS CAUSED BY CHANGES IN RECEIVER SENSITIVITY WHEN THE SAME CHANNEL IS RECEIVED MORE THAN ONCE ARE INPUT.
4	DIG7/SAT_CTL	OUT	LED DRIVE/CONTROL SIGNAL FOR SATELLITE RECEIVER
5	RC	IN	REMOTE CONTROL DATA INPUT
6	D_A	OUT	LED DRIVE
7	D_B	OUT	LED DRIVE
8	D_C	OUT	LED DRIVE
9	D_D	OUT	LED DRIVE
10	D_E	OUT	LED DRIVE
11	D_F	OUT	LED DRIVE
12	D_G	OUT	LED DRIVE
13	SW1	OUT	TUNER SYSTEM MODE:H
14	SCR[H]	IN	SCRAMBLE CONTROL INPUT (SCRAMBLE:H)
15	N.REC[H]	OUT	NORMAL AUDIO REC MODE CONTROL SIGNAL (REC:H)
16	OSD_S.IMPOSE	OUT	SIGNAL IMPOSE FOR OSD SCREEN
17	I2C_D_AV	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR AD IC
18	I2C_C_AV	OUT	SERIAL DATA TRANSFER CLOCK FOR AD IC
19	SP_SHORT[H]	OUT	MODE SELECT
20	LP/EP_SHORT[H]	OUT	MODE SELECT
21	SB_GAIN	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
22	REC_S	IN	REC SAFETY SWITCH DETECT (SW ON:L)
23	D.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR /TIMING CONTROL SIGNAL FOR REC
24	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
25	RESET	-	RESET TERMINAL (RESET ON:L)
26	A.FF	OUT	AUDIO FF OUTPUT
27	N.REC_ST[H]	OUT	NORMAL AUDIO SOUND RECORDING START
28	H.REC_ST[H]	OUT	HiFi AUDIO SOUND RECORDING START
29	P8_CTL1	OUT	PARALLEL CONTROLLER FOR CH+ IC (IN/OUT SWITCH)
30	SYNC_DET	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
31	12C_DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR MEMORY IC
32	12C_CLK/TEST	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
33	CAP_CTL_V	OUT	CAPSTAN MOTOR CONTROL
34	DRUM_CTL_V	OUT	DRUM MOTOR CONTROL
35	CH_SW/SW2	IN	TUNER SYSTEM MODE:L /CHANNEL SWITCHING SIGNAL
36	VDD	-	SYSTEM POWER
37	X_OUT	-	MAIN SYSTEM CLOCK (14MHz)
38	X_IN	-	MAIN SYSTEM CLOCK (14MHz)
39	VSS	-	GND
40	XC_IN	-	TIMER CLOCK(32KHz)
41	XC_OUT	-	TIMER CLOCK(32KHz)
42	CLK_SEL	IN	CLOCK SELECT FOR FLASH WRITER
43	A.MUTE[H]	OUT	AUDIO MUTE CONTROL (MUTE:H)
44	TU_MUTE[H]	OUT	TUNER VIDEO CONTROL (MUTE:H)
45	P20/CH+A	OUT	AV1 OUTPUT SWITCH CONTROL
46	CONV_TL[H]	OUT	R/F CONVERTER ON/OFF CONTROL
47	VIDEO_OSD_OUT	OUT	COMPOSITE VIDEO SIGNAL OUTPUT
48	VSS2	-	GND
49	V_TO_OSD	IN	COMPOSITE VIDEO SIGNAL INPUT
50	SYN_IN	IN	COMPOSITE SYNC/HORIZONTAL SYNC

PIN NO.	LABEL	IN/OUT	FUNCTION
51	VDD2	-	SYSTEM POWER
52	AFCC	OUT	AFC CLOCK (SYNC SEPARATOR FOR OSD / EXTERNAL CIRCUIT FOR AFC)
53	AFCLPF	IN	FILTER OUTPUT FOR HORIZONTAL SYNCHRONIZING OF OSD CHARACTER
54	FSCI	IN	FSC INPUT FOR OSD
55	FSCLPF	IN/OUT	FILTER OUTPUT FOR FSC OF OSD CHARACTER
56	CH+B	OUT	AV2 OUTPUT SWITCH CONTROL
57	CTL_G	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
58	P8_CTL2	OUT	PARALLEL CONTROLLER FOR CH+ IC (IN/OUT SWITCH)
59	P.CTL[H]	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
60	EE[L]	OUT	EE MODE : L
61	LM.F/R/S	OUT	LOADING MOTOR DRIVE
62	CAP.M_F/R	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:L/REV:H)
63	HS_FR	-	NOT USED
64	S.CASS[H]/P50_IN/AV1[H]	IN	S-CASS.DETECT/CONTROL SIGNAL FOR TV LINK/AV1 SELECT
65	D.PG/FG_IN	IN	DRUM FG PULSE INPUT
66	S_DET	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
67	C.FG_AMP_OUT	OUT	CAPSTAN FG PULSE AMO OUT
68	C.FG_IN	IN	CAPSTAN FG PULSE INPUT
69	AMP_VREF_OUT	OUT	CTL PULSE AMP REFFERENCE VOLTAGE OUTPUT
70	AMP_VREF_IN	IN	CTL PULSE AMP REFFERENCE VOLTAGE INPUT
71	AVSS	-	GND
72	AMP_C	-	CAPACITO CONNECT TERMINAL FOR CTL PULSE AMP CIRCUIT
73	AVCC	IN/OUT	SYSTEM POWER
74	CTL(+)	-	CTL(+) SIGNAL
75	CTL(-)	IN/OUT	CTL(-) SIGNAL
76	CTL_AMP_OUT	OUT	CTL PULSE OUTPUT
77	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY
78	END_SENSOR'	IN	END SENSOR
79	AFC	IN	TUNING CHECK
80	PAL_PB[H]	OUT	PAL FM(PB ON:H)
81	A.ENV/ND[L]	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE:L
82	P50_OUT	OUT	CONTROL SIGNAL FOR TV LINK
83	VIDEO_ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
84	MESECAM_DET	OUT	MESECAM:H
85	SECAM_DET/START_SENSOR	IN	SECAM MODE DETECT/START SENSOR SIGNAL INPUT
86	JSA	IN	INPUT FOR THE JOG SHUTTLE
87	SECAM[H]/JSB	IN	SECAM MODE :H / INPUT FOR THE JOG SHUTTLE
88	KEY1	IN	OPERATION CONTROL SIGNAL
89	KEY2	IN	OPERATION CONTROL SIGNAL
90	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
91	LSA	IN	MECHANISM MODE DETECT (A)
92	LSB	IN	MECHANISM MODE DETECT (B)
93	LSC	IN	MECHANISM MODE DETECT (C)
94	LSD	IN	MECHANISM MODE DETECT (D)
95	DIG1	OUT	LED DRIVE
96	DIG2	OUT	LED DRIVE
97	DIG3	OUT	LED DRIVE
98	DIG4	OUT	LED DRIVE
99	DIG5	OUT	LED DRIVE
100	DIG6	OUT	LED DRIVE

■ REMOTE CONTROLLER SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

REMOTE CONTROLLER
[HR-P201ER]

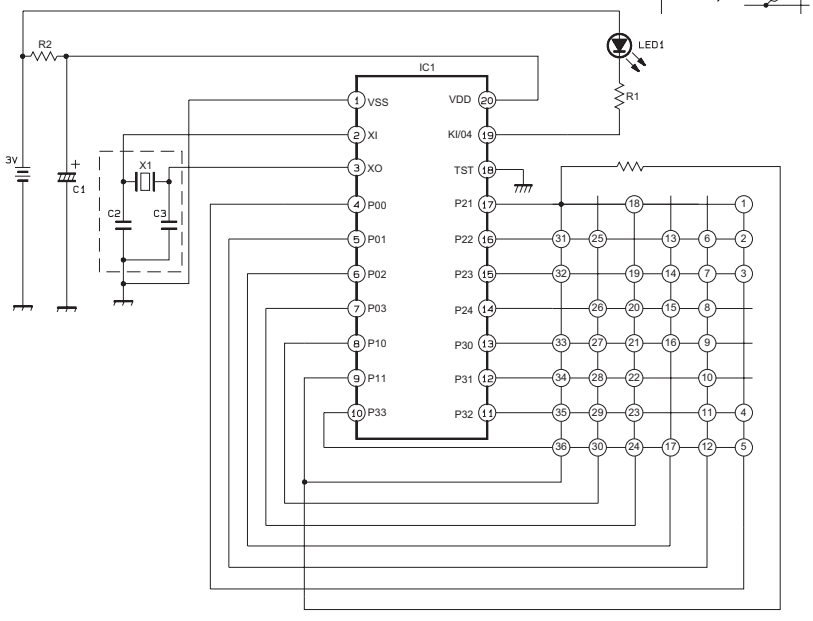


(LP30767-001#)

KEY No.	KEY NAME
1	TV
2	TV/VCR
3	POWER
4	–/– –
5	TV PROG(CH) –
6	TV PROG(CH) +
7	AUDIO/MUTE
8	CANCEL
9	PLAY
10	REW
11	FF
12	STOP
13	MENU
14	PAUSE
15	△ /TV PROG +
16	≪ /TV VOL –
17	≫ /TV VOL +
18	▽ /TV PROG –
19	REC
20	OK/OSD
19+9	REC START
19+14	REC PAUSE
1+2	TV/VCR
1+3	TV POWER
1+4	MAIN/SUB
1+7	MUTE
1+15	TV PROG +
1+16	TVVOL –
1+17	TV VOL +
1+18	TV PROG –

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

REMOTE CONTROLLER
[HR-V205ER, HR-V206ER, HR-V405ER, HR-V406ER]

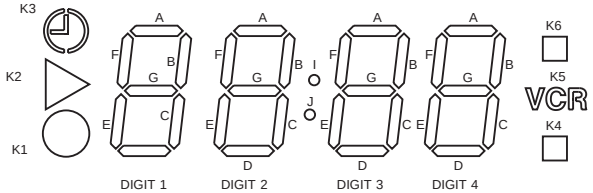


(LP20878-001#, 020#)

Key No.	Key Name
1	TV POWER
2	● REC
3	■ STOP
4	▶▶
5	DISPLAY/FF
6	
7	TV/CH+
8	SKIP SEARCH
9	PROG
10	PROG CHECK
11	SP/EP
12	◀◀ REW
13	▶ PLAY
14	TV/CH–
15	0/AUX
16	8/DAILY(M-F)
17	4/START–
18	TIMER
19	A.MONITOR
20	CH+
21	CANCEL/C.RESET
22	7
23	POWER
24	5/STOP–
25	VOL–
26	2/STOP+
27	TV/VCR
28	▮▮ PAUSE
29	MENU
30	6/DATE–
31	OK/ENTER/OSD
32	3/DATE+
33	VOL+
34	
35	TV/INPUT
36	1/START+
37	9/WEEKLY
38	CH–

■ FDP GRID ASSIGNMENT AND ANODE CONNECTION

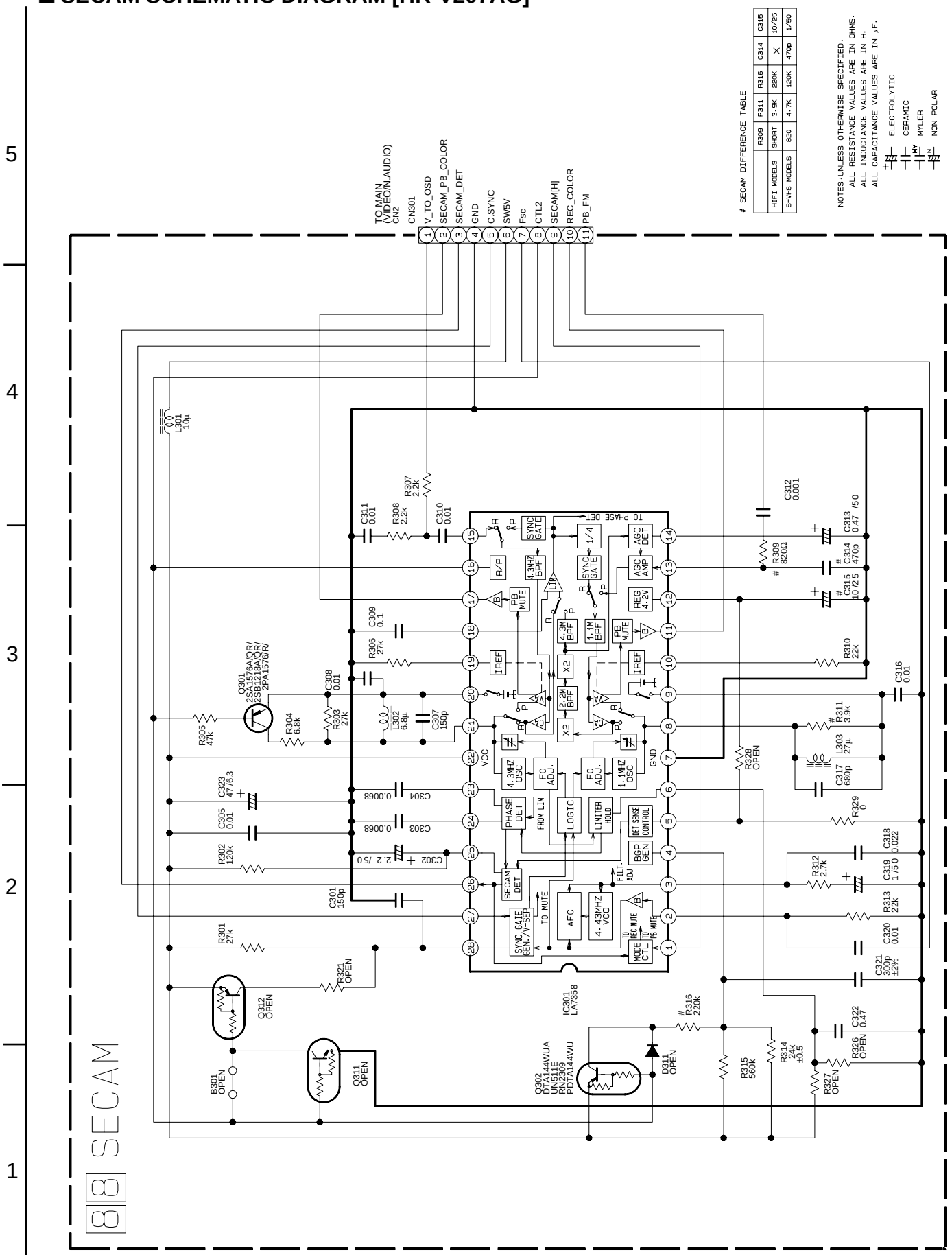
GRID ASSIGNMENT



ANODE CONNECTION

No.	CONNECTION
1	CATHODE 1G, 2G, 3G, 4G, I, J
2	CATHODE 1F, 2F, 3F, 4F, K6
3	CATHODE 1E, 2E, 3E, 4E, K1
4	CATHODE 1D, 2D, 3D, 4D, K4
5	CATHODE 1C, 2C, 3C, 4C, K5
6	CATHODE 1B, 2B, 3B, 4B, K2
7	CATHODE 1A, 2A, 3A, 4A, K3
8	COMMON ANODE K3, K2, K5, K4, K1, K6, I, J
9	COMMON ANODE DIGIT 4
10	COMMON ANODE DIGIT 3
11	COMMON ANODE DIGIT 2
12	COMMON ANODE DIGIT 1

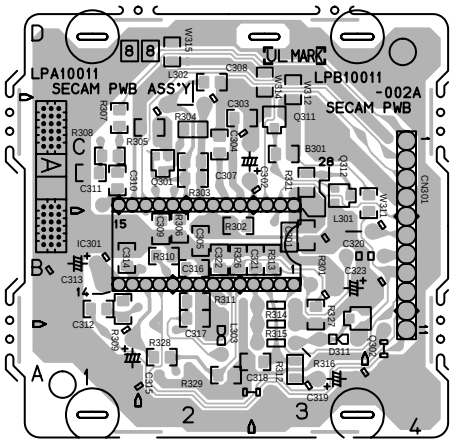
■ SECAM SCHEMATIC DIAGRAM [HR-V207AG]



p30113001a_rev0

■ SECAM CIRCUIT BOARD [HR-V207AG]

<88> SECAM
LPB10011-002A



<SECAM> LPB10011-002A

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR				R328	B C 2A
C301	B C 3B			R329	B C 2A
C302	A D 2C	**COIL**			
C303	B C 2C	L301	A D 4B		
C304	B C 2C	L302	A D 2C		
C305	B C 2B	L303	A D 2B		
C307	B C 2C				
C308	B C 2D	**TRANSISTOR**			
C309	B C 2B	Q301	B C 2C		
C310	B C 1C	Q302	B C 3B		
C311	B C 1C	Q311	B C 3C		
C312	B C 1B	Q312	B C 3C		
C313	A D 1B				
C314	B C 1B	**RESISTOR**			
C315	A D 1A	R301	B C 3B		
C316	B C 2B	R302	B C 2B		
C317	B C 2B	R303	B C 2C		
C318	B C 3A	R304	B C 2C		
C319	A D 3A	R305	B C 2C		
C320	A D 4B	R306	B C 2B		
C321	B C 3B	R307	B C 1C		
C322	B C 2B	R308	B C 1C		
C323	A D 4B	R309	B C 1B		
		R310	B C 2B		
CONNECTOR		R311	B C 2B		
CN301	A D 4C	R312	B C 3A		
		R313	B C 3B		
DIODE		R314	A D 3B		
D311	A D 3A	R315	A D 3B		
		R316	A D 3A		
IC		R321	B C 3C		
IC301	A D 3B	R326	B C 2B		
		R327	B C 3B		

PARTS LIST

1. EXPLODED VIEW

SAFETY PRECAUTION

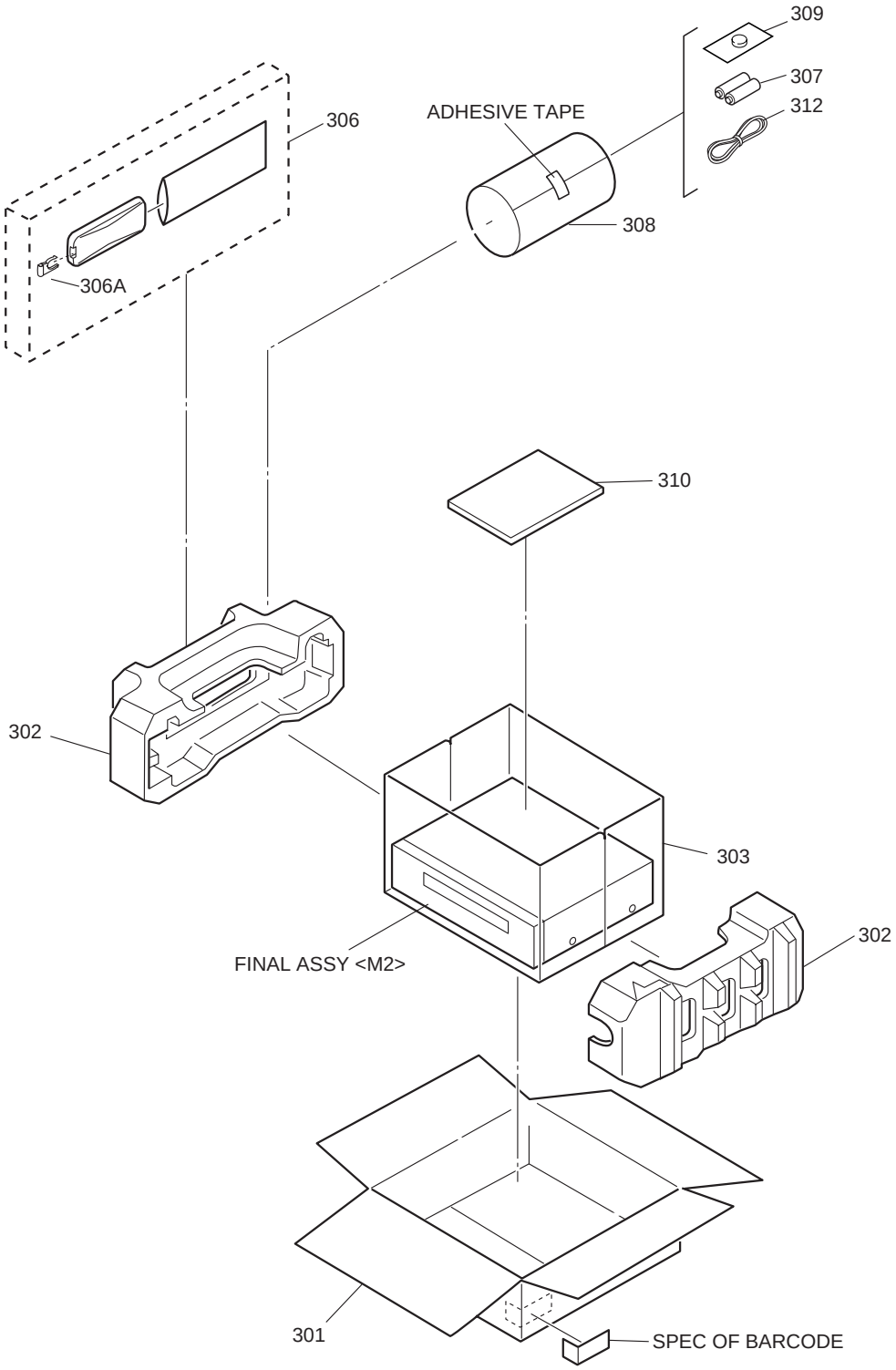
Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

BEWARE OF BOGUS PARTS

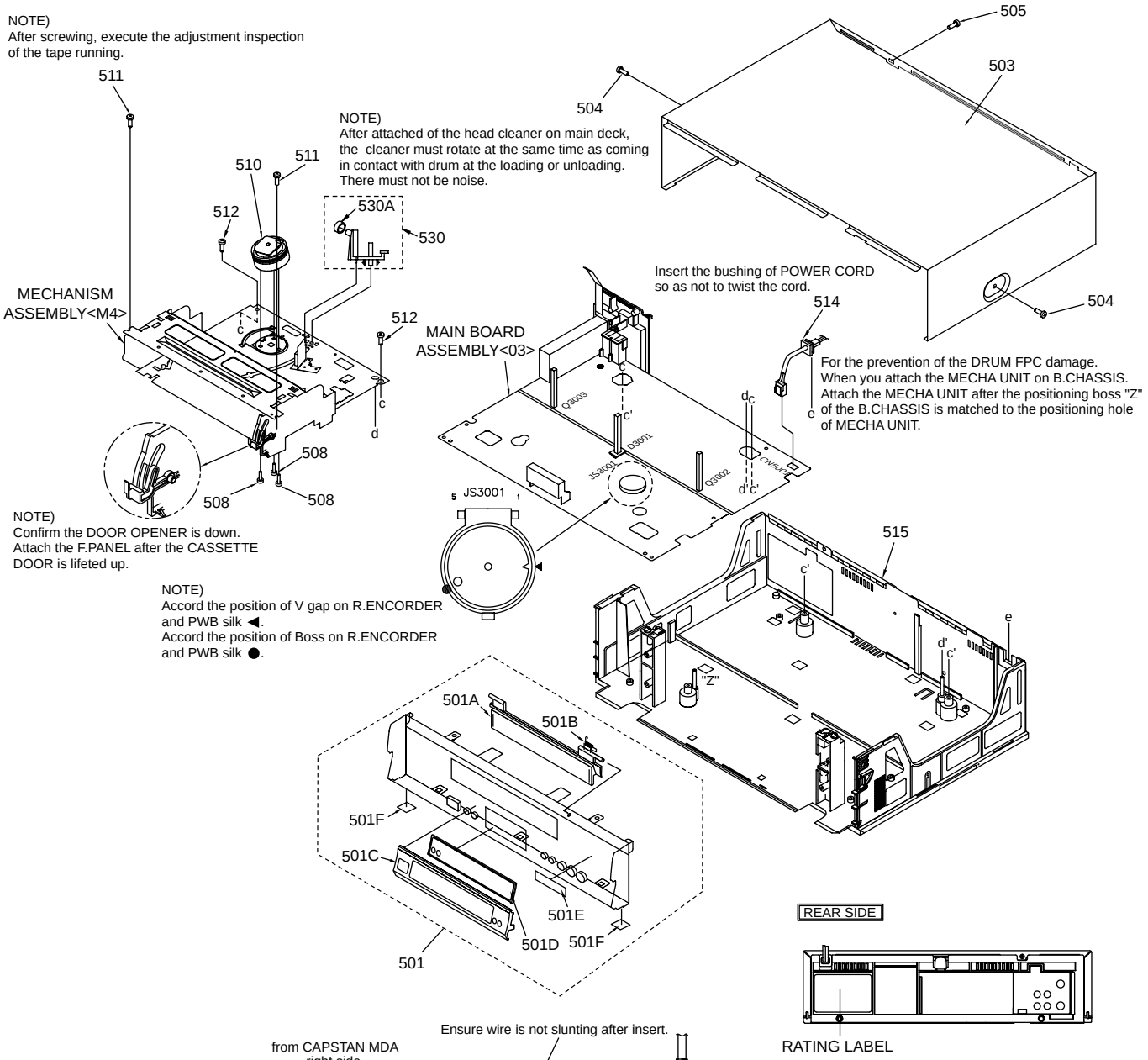
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

1.1 PACKING AND ACCESSORY ASSEMBLY <M1>

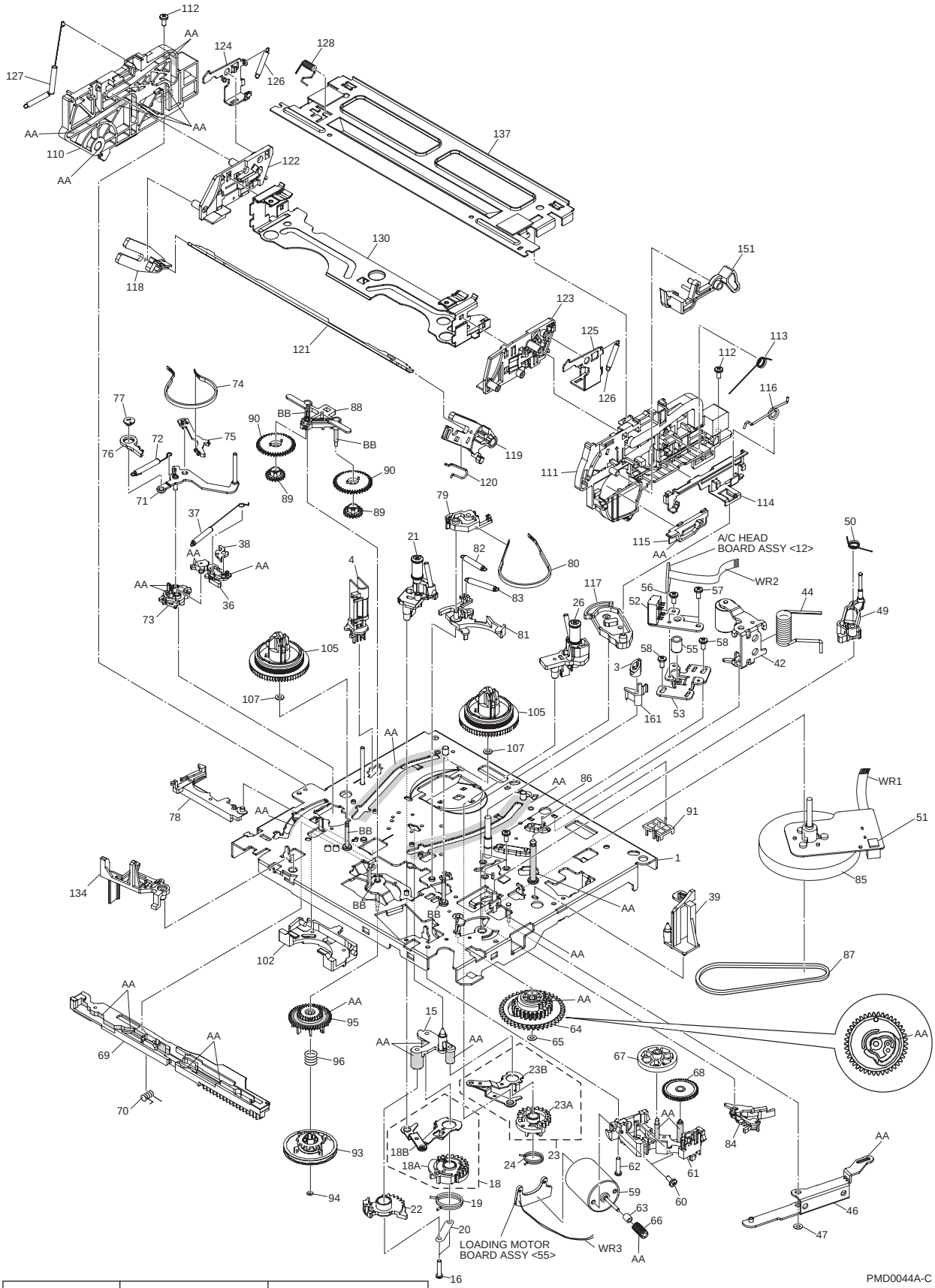
The instruction manual to be provided with this product will differ according to the destination.



1.2 FINAL ASSEMBLY <M2>



1.3 MECHANISM ASSEMBLY <M4>



Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-JB	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

2. PARTS LIST

MODEL	MARK	MODEL	MARK
HR-P57AG	A	HR-V207AG	D
HR-P58AG	B	HR-V400AG	E
HR-V200AG	C		

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	A B C D E

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PACKING AND ACCESSORY ASSEMBLY <M1>

301	LP31249-002A	PACKING CASE	A B
301	LP31249-001A	PACKING CASE	C D E
302	LP31251-001A	CUSHION ASSY	A B C D E
303	LP41038-002A	POLY BAG	A B C D E
306	LP30767-001A	REMOTE CTL UNIT	A B
306	LP21138-008A	REMOTE CTL UNIT	C D E
306A	LP40689-001A	COVER(BATTERY)	A B
306A	LP40991-002B	COVER(BATTERY)	C D E
307	———	BATTERY,X2	A B
308	QPC02202230P	POLY BAG	A B C D E
⚠ 309	QAB0057-001	LI BATTERY	C D E
⚠ 310	LPT0835-001B	INST.BOOK(ENGLISH)	A B
⚠ 310	LPT0835-002A	INST.BOOK(RUSSIAN)	A B
⚠ 310	LPT0808-001B	INST.BOOK(ENGLISH)	C D E
⚠ 310	LPT0808-002A	INST.BOOK(FRENCH)	D
⚠ 310	LPT0808-003A	INST.BOOK(SPANISH)	D
⚠ 310	LPT0808-004A	INST.BOOK(CHINESE)	C E
⚠ 310	LPT0808-005A	INST.BOOK(RUSSIAN)	C E
⚠ 310	LPT0808-006A	INST.BOOK(ARABIC)	D
312	QAM0505-001	RF CABLE	A B C D E

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FINAL ASSEMBLY <M2>

⚠ 501	LP10480-006D	F.PANEL ASSY	A
⚠ 501	LP10480-007D	F.PANEL ASSY	B
⚠ 501	LP10480-001D	F.PANEL ASSY	C
⚠ 501	LP10480-003E	F.PANEL ASSY	D
⚠ 501	LP10480-009D	F.PANEL ASSY	E
501A	LP21159-004A	CASS. DOOR	A
501A	LP21159-005A	CASS. DOOR	B
501A	LP21159-001A	CASS. DOOR	C E
501A	LP21159-002B	CASS. DOOR	D
501B	PQ46448	TOR.SPRING	A B C D E
501C	LP10482-001A	COVER	A C D
501C	LP10482-002A	COVER	B
501C	LP10482-003A	COVER	E
501D	LP21158-002B	DISPLAY WINDOW	A B C
501D	LP21158-001A	DISPLAY WINDOW	D E
501E	LP41064-006A	STICKER	A B
501E	LP41064-001A	STICKER	C D
501E	LP41064-002A	STICKER	E
501F	PQ43013-7	FOOT,X2	A B C D E
⚠ 503	PQ11898-56-25	TOP COVER	A C D E
⚠ 503	PQ11898-58-25	TOP COVER	B
504	QYTDSF3010R	TAP SCREW,X2,SIDE	A C D E
504	QYTDSF3010M	TAP SCREW,X2,SIDE	B
505	QYTDSF3010M	TAP SCREW,REAR	A B C D E
508	QYSPSPD3008Z	SCREW,X3,DRUM	A B C D E
510	PDV2534A	DRUM FINAL ASSY	A B C D
510	PDV2537A	DRUM FINAL ASSY	E
511	QYSPSFG3010Z	TAP SCREW,X2,FOR MECHA	A B C D E
512	QYTDSF4012Z	TAP SCREW,X2,FOR MECHA	A B C D E
⚠ 514	QMP4A10-170	POWER CORD	A B C D E
⚠ 515	LP20262-002K	BOTTOM CHASSIS	A B C D E
530	LP40910-002G	H.CLEANER ASSY	A B C D E
530A	PQ46419-2	CLEANER	A B C D E

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	A B C D E

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MECHANISM ASSEMBLY <M4>

1	LP21039-001X	MAIN DECK ASSY	A B C D E
3	LP40097-002E	GUIDE POLE CAP	A B C D E
4	NAH0004-001	FULL ERASE HEAD	A B C D E
15	LP30958-001B	LOAD.GEAR BASE	A B C D E
16	QYTPST2620Z	TAP SCREW,X2,L.G.BASE	A B C D E
18	LP40798-001A	LOAD.GEAR(SUPPLY) ASSY	A B C D E
18A	LP21040-001A	LOAD.GEAR(SUPPLY)	A B C D E
18B	LP40799-001A	LOAD.ARM(SUPPLY) ASSY	A B C D E
19	LP40837-001A	TORSION SPRING(S),L.GEAR(S)	A B C D E
20	LP40903-002B	FIXING PLATE	A B C D E
21	LP40806-001D	POLE BASE ASSY(SUPPLY)	A B C D E
22	LP30959-001B	LOAD GEAR	A B C D E
23	LP40802-001C	LOAD.GEAR(TAKE UP) ASSY	A B C D E
23A	LP21041-001D	LOAD.GEAR(TAKE UP)	A B C D E
23B	LP40803-001A	LOAD.ARM(TAKE UP) ASSY	A B C D E
24	LP40838-001A	TORSION SPRING(T),L.GEAR(T)	A B C D E
26	LP40808-001E	POLE BASE ASSY(TAKE UP)	A B C D E
36	LP21055-001G	TU LEVER	A B C D E
37	LP40943-001A	TENSION SPRING	A B C D E
38	LP40859-001D	T-UP HEAD	A B C D E
39	LP30961-001C	LID GUIDE	A B C D E
42	LP40810-001C	PINCH ROLLER ARM ASSY	A B C D E
44	LP40840-001D	TORSION SPRING,P.ROLLER	A B C D E
46	LP30963-001C	PRESS LEVER	A B C D E
47	PQM30017-24	SLIT WASHER,P.LEVER	A B C D E
49	LP40813-001D	GUIDE ARM ASSY	A B C D E
50	LP40841-001A	TORSION SPRING,G.ARM	A B C D E
51	LP30002-090A	SPACER,CAPSTAN MOTOR	A B C D E
52	NAH0003-001	AC HEAD	A B C D E
53	LP30965-001A	HEAD BASE	A B C D E
55	LP40842-001D	COMPRESSION SPRING	A B C D E
56	QYTDST2006M	TAP SCREW,A/C HEAD	A B C D E
57	LP41036-001A	A/C ADJ.SCREW,X2,A/C HEAD	A B C D E
58	QYTDST2606Z	TAP SCREW,X2,A/C HEAD	A B C D E
59	QAR0289-001	LOADING MOTOR	A B C D E
60	QYTPSP3003Z	SCREW,X2,L.MOTOR	A B C D E
61	LP21056-002J	MOTOR BRACKET	A B C D E
62	QYTPST2620Z	TAP SCREW,M.BKT	A B C D E
63	LP40814-001B	WORM BEARING	A B C D E
64	LP21044-001E	CONTROL CAM	A B C D E
65	PQM30017-24	SLIT WASHER,CTL.CAM	A B C D E
66	LP40815-001A	WORM GEAR	A B C D E
67	LP40816-001B	HELICAL GEAR,M.BKT	A B C D E
68	LP40817-001A	CONNECT GEAR	A B C D E
69	LP10400-001L	CONTROL PLATE	A B C D E
70	LP40843-001A	TORSION SPRING	A B C D E
71	LP40818-001B	TENSION ARM ASSY	A B C D E
72	LP40844-001F	TENSION SPRING,T.ARM	A B C D E
73	LP21045-001E	TENSION ARM BASE	A B C D E
74	LP40821-001A	TENSION BAND ASSY	A B C D E
75	LP30967-001B	BAND HOLDER-1	A B C D E
76	LP30968-001C	BAND HOLDER-2	A B C D E
77	LP40822-002B	ADJUST PIN	A B C D E
78	LP31000-005E	TENSION ARM LEVER	A B C D E
79	LP21046-001C	MAIN BRAKE(TAKE UP)	A B C D E
80	LP40824-001A	BAND BRAKE ASSY	A B C D E
81	LP30969-002B	BRAKE LEVER	A B C D E

MODEL	MARK	MODEL	MARK
HR-P57AG	A	HR-V207AG	D
HR-P58AG	B	HR-V400AG	E
HR-V200AG	C		

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	A B C D E
82	LP30003-033B	TENSION SPRING,BRK LEVER	A B C D E
83	LP30003-035B	TENSION SPRING,BRK LEVER	A B C D E
84	LP40825-001B	CAPSTAN BRAKE ASSY	A B C D E
⚠ 85	QAR0267-002	CAPSTAN MOTOR	A B C D E
86	QYTPSG2606Z	TAP SCREW,X3,CAP.MOTOR	A B C D E
87	LP30005-010A	BELT,CAPSTAN MOTOR	A B C D E
88	LP30970-001A	IDLER ARM	A B C D E
89	LP40828-004A	IDLER GEAR 1,X2	A B C D E
90	LP40829-002A	IDLER GEAR 2,X2	A B C D E
91	LP31014-002A	WIRE HOLDER	A B C D E
93	LP40934-001B	CLUTCH UNIT	A B C D E
94	PQM30017-47	SLIT WASHER,CLUT.UNIT	A B C D E
95	LP30973-001A	DIRECT GEAR	A B C D E
96	LP40939-001A	COMPRESION SPRING,DIR.GEAR	A B C D E
102	LP30974-001C	CHANGE LEVER	A B C D E
105	LP21049-001A	REEL DISK,X2	A B C D E
107	LP30017-004A	SPACER,X2,REEL DISK	A B C D E
110	LP10401-001L	SIDE FRAME(L)	A B C D E
111	LP10402-001M	SIDE FRAME(R)	A B C D E
112	QYTDST2606Z	TAP SCREW,X2,FOR MECHA	A B C D E
113	LP40917-001D	TORSION SPRING,FOR DUMP.	A B C D E
114	LP30976-001E	SIDE PLATE	A B C D E
115	LP30977-002D	LIMIT PLATE	A B C D E
116	LP40846-001C	LIMIT SPRING,SIDE PLATE	A B C D E
117	LP31100-002A	DRIVE LEVER	A B C D E
118	LP30978-001B	DRIVE ARM(L)	A B C D E
119	LP30979-001R	DRIVE ARM(R)	A B C D E
120	LP40847-001B	TORSION SPRING,D.ARM(R)	A B C D E
121	LP30980-001E	CONNECT PLATE	A B C D E
122	LP10403-001C	SIDE HOLDER(L)	A B C D E
123	LP10404-001E	SIDE HOLDER(R)	A B C D E
124	LP30983-001B	LOCK LEVER(L)	A B C D E
125	LP30984-001B	LOCK LEVER(R)	A B C D E
126	LP40924-001D	TENSION SPRING,X2,L.LEVER	A B C D E
127	LP40972-001A	EARTH SPRING(1)	A B C D E
128	LP40857-001B	EARTH SPRING(2),TOP FRAME	A B C D E
130	LP30981-001G	CASSETTE HOLDER ASSY	A B C D E
134	LP21051-002C	REC SAFETY LEVER	A B C D E
137	LP21052-001K	TOP FRAME	A B C D E
151	LP30985-002M	DOOR OPENER,SIDE FRM(R)	A B C D E
161	LP40993-001A	TAPE GUIDE	A B C D E
WR1	WJT0059-001D	E-CARD WIRE,CAP MOTOR	A B C D E
WR2	WJT0067-001B	E-CARD WIRE,A/C HEAD	A B C D E
WR3	WJS0022-001A	E-FL/RB WIRE,L.MOTOR	A B C D E

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MAIN BOARD ASSEMBLY <03>

PW1	LPA10205-02A	MAIN BOARD ASSY		A B
PW1	LPA10205-03A	MAIN BOARD ASSY		C
PW1	LPA10205-04A	MAIN BOARD ASSY		D
PW1	LPA10205-01A	MAIN BOARD ASSY		E
IC1	JCP8060-MSA	IC		A B C D E
IC3001	MN101D06GJX	IC(MCU),MAIN CPU		A B C D E
IC3001 or	MN101DF06KAFJX	IC(MCU),MAIN CPU		A B C D E
IC3002	IC-PST3425U-X	IC,RESET IC		C D E
IC3002 or	S-80825CNNB-X	IC,RESET IC		C D E
IC3003	LPN0812-007A-11	IC,EEPROM	(*REFER TO BELOW)	A B
IC3003	LPN0812-005A-33	IC,EEPROM	(*REFER TO BELOW)	C
IC3003	LPN0812-003A-34	IC,EEPROM	(*REFER TO BELOW)	D
IC3003	LPN0812-001A-37	IC,EEPROM	(*REFER TO BELOW)	E
IC7002	GP1UM291QK	IR DETECT UNIT		A B C D E
Q7	2SC4081/QRS/-X	TRANSISTOR,SP2 SHORT		E
Q7 or	2PC4081/R/-X	TRANSISTOR,SP2 SHORT		E
Q7 or	2SD1819A/QRS/-X	TRANSISTOR,SP2 SHORT		E
Q8	2SC4081/QRS/-X	TRANSISTOR,SP1 SHORT		E
Q8 or	2PC4081/R/-X	TRANSISTOR,SP1 SHORT		E
Q8 or	2SD1819A/QRS/-X	TRANSISTOR,SP1 SHORT		E
Q9	2SC4081/QRS/-X	TRANSISTOR,EP2 SHORT		E
Q9 or	2PC4081/R/-X	TRANSISTOR,EP2 SHORT		E
Q9 or	2SD1819A/QRS/-X	TRANSISTOR,EP2 SHORT		E
Q10	2SC4081/QRS/-X	TRANSISTOR,EP1 SHORT		E
Q10 or	2PC4081/R/-X	TRANSISTOR,EP1 SHORT		E
Q10 or	2SD1819A/QRS/-X	TRANSISTOR,EP1 SHORT		E
Q202	2SC4081/QRS/-X	TRANSISTOR,OSD_IMPOSE		A B C D E
Q202 or	2PC4081/R/-X	TRANSISTOR,OSD_IMPOSE		A B C D E
Q202 or	2SD1819A/QRS/-X	TRANSISTOR,OSD_IMPOSE		A B C D E
Q2001	2SC4081/QRS/-X	TRANSISTOR		A B C D E
Q2001 or	2SD1819A/QRS/-X	TRANSISTOR		A B C D E
Q2001 or	2PC4081/R/-X	TRANSISTOR		A B C D E
Q2002	2SC4081/QRS/-X	TRANSISTOR		A B C D E
Q2002 or	2SD1819A/QRS/-X	TRANSISTOR		A B C D E
Q2002 or	2PC4081/R/-X	TRANSISTOR		A B C D E
Q2003	DTA144WUA-X	DIGI TRANSISTOR		A B C D E
Q2003 or	UN511E-X	DIGI TRANSISTOR		A B C D E
Q2003 or	RN2309-X	D TRANSISTOR		A B C D E
Q2003 or	PDTA144WU-X	DIGI TRANSISTOR		A B C D E
Q2051	2SC4081/QRS/-X	TRANSISTOR		A B C D E
Q2051 or	2SD1819A/QRS/-X	TRANSISTOR		A B C D E
Q2051 or	2PC4081/R/-X	TRANSISTOR		A B C D E
Q2052	2SA1576A/QR/-X	TRANSISTOR		A B C D E
Q2052 or	2SB1218A/QR/-X	TRANSISTOR		A B C D E
Q2052 or	2PA1576/R/-X	TRANSISTOR		A B C D E
Q2053	DTC144WUA-X	DIGI TRANSISTOR		A B C D E
Q2053 or	UN521E-X	DIGI TRANSISTOR		A B C D E
Q2053 or	RN1309-X	DIGI TRANSISTOR		A B C D E
Q2053 or	PDTC144WU-X	DIGI TRANSISTOR		A B C D E
Q2054	2SA1576A/QR/-X	TRANSISTOR		A B C D E
Q2054 or	2SB1218A/QR/-X	TRANSISTOR		A B C D E
Q2054 or	2PA1576/R/-X	TRANSISTOR		A B C D E
Q2055	DTC144WUA-X	DIGI TRANSISTOR		A B C D E
Q2055 or	UN521E-X	DIGI TRANSISTOR		A B C D E
Q2055 or	RN1309-X	DIGI TRANSISTOR		A B C D E
Q2055 or	PDTC144WU-X	DIGI TRANSISTOR		A B C D E
Q3003	PTZ-NV16A	IC(PHOTO SENSOR),END SENSOR		A B C D E
Q3004	2SD1819A/QRS/-X	TRANSISTOR,POWER DET		C D E
Q3004 or	2SC4081/QRS/-X	TRANSISTOR,POWER DET		C D E
Q3004 or	2PC4081/R/-X	TRANSISTOR,POWER DET		C D E
Q3005	2SD1819A/QRS/-X	TRANSISTOR,RESET 2.5V		A B
Q3005 or	2SC4081/QRS/-X	TRANSISTOR,RESET 2.5V		A B
Q3005 or	2PC4081/R/-X	TRANSISTOR,RESET 2.5V		A B
Q3006	2SD1819A/QRS/-X	TRANSISTOR,RESET 2.5V		A B
Q3006 or	2SC4081/QRS/-X	TRANSISTOR,RESET 2.5V		A B
Q3006 or	2PC4081/R/-X	TRANSISTOR,RESET 2.5V		A B
Q4001	UN5211-X	DIGI TRANSISTOR		A B C D E
Q4001 or	DTC114EUA-X	DIGI TRANSISTOR		A B C D E
Q4001 or	PDTC114EU-X	DIGI TRANSISTOR		A B C D E
Q4001 or	RN1302-X	DIGI TRANSISTOR		A B C D E
Q4002	2SD1819A/QRS/-X	TRANSISTOR		A B C D E
Q4002 or	2SC4081/QRS/-X	TRANSISTOR		A B C D E
Q4002 or	2PC4081/R/-X	TRANSISTOR		A B C D E

* The VCR goes to jig RCU mode after replacing the EEPROM and the VCR does not accept some RCU command.
Therefore please set the VCR to the user RCU mode after replacing the EEPROM.
The method of setting the VCR to the user RCU mode is written on the service manual.

MODEL	MARK	MODEL	MARK
HR-P57AG	A	HR-V207AG	D
HR-P58AG	B	HR-V400AG	E
HR-V200AG	C		

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	A	B	C	D	E
	Q5101	2SK2632-CB14	POWER MOS FET	A	B	C	D	E
	Q5101 or	2SK2129-LT	POWER MOS FET	A	B	C	D	E
	Q5101 or	2SK2632	POWER MOS FET	A	B	C	D	E
	Q5101 or	2SK2129	POWER MOS FET	A	B	C	D	E
	Q5102	2SD2144S/UV/-T	TRANSISTOR	A	B	C	D	E
	Q5301	2SC1740S/RS/-T	TRANSISTOR	A	B	C	D	E
	Q5301 or	2SC3199/YG/-T	TRANSISTOR	A	B	C	D	E
⚠	Q5304	2SD2144S/UV/-T	TRANSISTOR,SW12V	A	B	C	D	E
	Q5305	DTA114EUA-X	DIGI TRANSISTOR,SW12V	A	B	C	D	E
	Q5305 or	UN5111-X	DIGI TRANSISTOR,SW12V	A	B	C	D	E
	Q5305 or	RN2302-X	D TRANSISTOR,SW12V	A	B	C	D	E
	Q5305 or	PDTA114EU-X	DIGI TRANSISTOR,SW12V	A	B	C	D	E
	Q5306	DTC114EUA-X	DIGI TRANSISTOR,SW12V	A	B	C	D	E
	Q5306 or	UN5211-X	DIGI TRANSISTOR,SW12V	A	B	C	D	E
	Q5306 or	RN1302-X	DIGI TRANSISTOR,SW12V	A	B	C	D	E
	Q5306 or	PDTC114EU-X	DIGI TRANSISTOR,SW12V	A	B	C	D	E
	Q5307	2SD2144S/UV/-T	TRANSISTOR,RF5V	A	B	C	D	E
⚠	Q5321	2SD1858/QR/-T	TRANSISTOR,SW5V	A	B	C	D	E
	Q6030	2SB1218A/RS/-X	TRANSISTOR,V_BUFFER			C	D	E
	Q6031	DTC114EUA-X	DIGI TRANSISTOR,V_MUTE			C	D	E
	Q6031 or	UN5211-X	DIGI TRANSISTOR			C	D	E
	Q6031 or	RN1302-X	DIGI TRANSISTOR			C	D	E
	Q6031 or	PDTC114EU-X	DIGI TRANSISTOR			C	D	E
	Q6032	DTC114EUA-X	DIGI TRANSISTOR,A_MUTE			C	D	E
	Q6032 or	UN5211-X	DIGI TRANSISTOR			C	D	E
	Q6032 or	RN1302-X	DIGI TRANSISTOR			C	D	E
	Q6032 or	PDTC114EU-X	DIGI TRANSISTOR			C	D	E
	Q7001	DTA143TUA-X	DIGI TRANSISTOR,DIG1			C	D	E
	Q7002	DTA143TUA-X	DIGI TRANSISTOR,DIG2			C	D	E
	Q7003	DTA143TUA-X	DIGI TRANSISTOR,DIG3			C	D	E
	Q7004	DTA143TUA-X	DIGI TRANSISTOR,DIG4			C	D	E
	Q7005	DTA143TUA-X	DIGI TRANSISTOR,DIG5			C	D	E
	Q7008	DTC143TUA-X	DIGI TRANSISTOR			C	D	E
	Q7008 or	UN5216-X	D TRANSISTOR			C	D	E
	Q7009	DTC143TUA-X	DIGI TRANSISTOR			C	D	E
	Q7009 or	UN5216-X	D TRANSISTOR			C	D	E
	Q7010	DTC143TUA-X	DIGI TRANSISTOR	A	B	C	D	E
	Q7010 or	UN5216-X	D TRANSISTOR	A	B	C	D	E
	Q7011	DTC143TUA-X	DIGI TRANSISTOR	A	B	C	D	E
	Q7011 or	UN5216-X	D TRANSISTOR	A	B	C	D	E
	Q7012	DTC143TUA-X	DIGI TRANSISTOR			C	D	E
	Q7012 or	UN5216-X	D TRANSISTOR			C	D	E
	Q7013	DTC143TUA-X	DIGI TRANSISTOR			C	D	E
	Q7013 or	UN5216-X	D TRANSISTOR			C	D	E
	Q7014	DTC143TUA-X	DIGI TRANSISTOR			C	D	E
	Q7014 or	UN5216-X	D TRANSISTOR			C	D	E
	Q7106	2SB1218A/QR/-X	TRANSISTOR	A	B	C	D	E
	Q7106 or	2SA1576A/QR/-X	TRANSISTOR	A	B	C	D	E
	Q7106 or	2PA1576/R/-X	TRANSISTOR	A	B	C	D	E
	D2001	1SS133-T2	SI DIODE	A	B	C	D	E
	D2001 or	1SS270A-T2	SI DIODE	A	B	C	D	E
	D3001	LNB2301L01VI	IR LED,LED	A	B	C	D	E
	D3002	1SS133-T2	SI DIODE,PROTECT	A	B	C	D	E
	D3002 or	1SS270A-T2	SI DIODE,PROTECT	A	B	C	D	E
	D3003	RD33ES/B3/-T2	Z DIODE,POWER DET			C	D	E
	D3003 or	MTZJ33C-T2	Z DIODE,POWER DET			C	D	E
	D3004	10EDB20-T2	SI DIODE,AL5V_SYS	A	B	C	D	E
	D3004 or	1A3G-T2	SI DIODE,AL5V_SYS	A	B	C	D	E
	D3005	10EDB20-T2	SI DIODE,AL5V			C	D	E
	D3005 or	1A3G-T2	SI DIODE,AL5V			C	D	E
	D3009	RD3.9ES/B2/-T2	Z DIODE,RESET 4V	A	B			
	D3009 or	MTZJ3.9B-T2	Z DIODE,RESET 4V	A	B			
	D5001	S1WB/A/60-4102	BRIDGE DIODE	A	B	C	D	E
	D5001 or	S1WB/A/60-X	BRIDGE DIODE	A	B	C	D	E
	D5001 or	S1WB(A)60F4072X	BRIDGE DIODE	A	B	C	D	E
	D5101	AU01-T2	SI DIODE	A	B	C	D	E
	D5101 or	1SR153-400-T2	FR DIODE	A	B	C	D	E
	D5101 or	ERA18-04-T2	FR DIODE	A	B	C	D	E
	D5101 or	10ERB40-T2	FR DIODE	A	B	C	D	E
	D5102	AU01-T2	SI DIODE	A	B	C	D	E
	D5102 or	1SR153-400-T2	FR DIODE	A	B	C	D	E
	D5102 or	ERA18-04-T2	FR DIODE	A	B	C	D	E
	D5102 or	10ERB40-T2	FR DIODE	A	B	C	D	E
	D5103	1SS133-T2	SI DIODE	A	B	C	D	E
	D5103 or	1SS270A-T2	SI DIODE	A	B	C	D	E
	D5105	1SS133-T2	SI DIODE	A	B	C	D	E
	D5105 or	1SS270A-T2	SI DIODE	A	B	C	D	E
	D5203	AU01Z-T2	FR DIODE	A	B	C	D	E
	D5203 or	10ERB20-T2	FR DIODE	A	B	C	D	E
	D5203 or	1F4G-T2	FR DIODE	A	B	C	D	E
	D5204	AU01Z-T2	FR DIODE	A	B	C	D	E
	D5204 or	10ERB20-T2	FR DIODE	A	B	C	D	E
	D5204 or	1F4G-T2	FR DIODE	A	B	C	D	E
⚠	D5207	AK04-T2	SB DIODE,6V	A	B	C	D	E
⚠	D5207 or	11EQS04-T2	SB DIODE,6V	A	B	C	D	E
⚠	D5207 or	1S4-T2	SB DIODE,6V	A	B	C	D	E
⚠	D5207 or	SBO40-T2	SB DIODE,6V	A	B	C	D	E
⚠	D5209	AK04-T2	SB DIODE,6V	A	B	C	D	E
⚠	D5209 or	11EQS04-T2	SB DIODE,6V	A	B	C	D	E
⚠	D5209 or	1S4-T2	SB DIODE,6V	A	B	C	D	E
⚠	D5209 or	SBO40-T2	SB DIODE,6V	A	B	C	D	E
	D5210	AU01Z-T2	FR DIODE,BT2	A	B	C	D	E
	D5210 or	1F4G-T2	FR DIODE,BT2	A	B	C	D	E
	D5210 or	1SR153-400-T2	FR DIODE,BT2	A	B	C	D	E
	D5210 or	10ERB20-T2	FR DIODE,BT2	A	B	C	D	E
	D5210 or	PG104RS-T2	FR DIODE,BT2	A	B	C	D	E
	D5301	MTZJ15C-T2	Z DIODE,OVERVOLT	A	B	C	D	E
	D5301 or	RD15ES/B3/-T2	Z DIODE,OVERVOLT	A	B	C	D	E
	D5302	MTZJ11C-T2	Z DIODE,SW12V	A	B	C	D	E
	D5302 or	RD11ES/B3/-T2	Z DIODE,SW12V	A	B	C	D	E
	D5303	MTZJ5.6A-T2	Z DIODE,AL5.8V	A	B	C	D	E
	D5303 or	RD5.6ES/B1/-T2	Z DIODE,AL5.8V	A	B	C	D	E
	D5305	MTZJ5.6C-T2	Z DIODE,SW5V	A	B	C	D	E
	D5305 or	RD5.6ES/B3/-T2	Z DIODE,SW5V	A	B	C	D	E
	D6002	HZ30-2L-T2	Z.DIODE,TU30V	A	B	C	D	E
	D6002 or	HZ30-2LTD	Z DIODE (M),TU30V	A	B	C	D	E
	D6002 or	MTZJ30D-T2	Z DIODE	A	B	C	D	E
	D7004	SLR-342MG-T16	LED,POWER LED	A	B			
	D7007	SLR-342VR-T16	LED,REC LED	A	B			
	R1	NRSA02J-622X	MG RESISTOR 6.2kΩ,1/10W	A	B	C	D	E
	R2	NRSA02J-152X	MG RESISTOR 1.5kΩ,1/10W	A	B	C	D	E
	R3	NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W	A	B	C	D	E
	R5	NRSA02J-821X	MG RESISTOR 820Ω,1/10W				D	
	R11	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W	A	B	C	D	E
	R12	NRSA02J-102X	MG RESISTOR 1kΩ,1/10W	A	B	C	D	E
	R21	NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W					E
	R22	NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W					E
	R35	NRSA02J-821X	MG RESISTOR 820Ω,1/10W				D	
	R36	NRSA02J-472X	MG RESISTOR 4.7kΩ,1/10W	A	B	C	D	E
	R37	NRSA02J-153X	MG RESISTOR 15kΩ,1/10W	A	B	C	D	E
	R201	NRSA02J-332X	MG RESISTOR 3.3kΩ,1/10W	A	B	C	D	E
	R202	NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W	A	B	C	D	E

MODEL	MARK	MODEL	MARK
HR-P57AG	A	HR-V207AG	D
HR-P58AG	B	HR-V400AG	E
HR-V200AG	C		

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION		A B C D E
R203	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C D E
R204	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C D E
R210	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W	A B C D E
R211	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R2001	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C D E
R2003	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B
R2003	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	C D E
R2004	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W	A B
R2004	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	C D E
R2005	QRE141J-153Y	C RESISTOR	15kΩ,1/4W	A B C D E
R2006	QRE141J-473Y	C RESISTOR	47kΩ,1/4W	E
R2008	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R2009	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	E
R2011	QRE141J-473Y	C RESISTOR	47kΩ,1/4W	A B C D E
R2012	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	A B C D E
R2013	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	A B C D E
R2014	NRSA02J-394X	MG RESISTOR	390kΩ,1/10W	A B C D E
R2015	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	A B C D E
R2016	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W	A B C D E
R2017	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A B C D E
R2018	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R2019	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R2021	NRSA02J-333X	MG RESISTOR	33kΩ,1/10W	A B C D E
R2022	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R2023	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R2053	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R2054	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W	A B C D E
R2055	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W	A B C D E
R2056	QRE141J-820Y	C RESISTOR	82Ω,1/4W	A B C D E
R2057	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A B C D E
R2058	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A B C D E
R2059	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W	A B C D E
R2060	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A B C D E
R3005	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R3016	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R3017	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C D E
R3018	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C D E
R3021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C D E
R3025	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R3031	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C D E
R3032	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C D E
R3035	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R3042	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	C D E
R3057	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R3066	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	E
R3084	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R3087	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	D
R3088	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R3089	QUY160-100Y	IM BUS WIRE		A B C D E
R3090	QUY160-100Y	IM BUS WIRE		C D E
R3091	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R3092	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R3093	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R3094	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R3095	QUY160-100Y	IM BUS WIRE		C D E
R3096	QUY160-100Y	IM BUS WIRE		C D E
R3097	QUY160-100Y	IM BUS WIRE		C D E
R3098	QUY160-100Y	IM BUS WIRE		C D E
R3099	QUY160-100Y	IM BUS WIRE		C D E
R3205	QRE141J-181Y	C RESISTOR	180Ω,1/4W	A B C D E
R3207	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A B C D E

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION		A B C D E
R3208	NRSA02J-121X	MG RESISTOR	120Ω,1/10W	A B C D E
R3209	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A B C D E
R3210	NRSA02J-121X	MG RESISTOR	120Ω,1/10W	A B C D E
R3211	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W	A B C D E
R3212	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W	A B C D E
R3213	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W	A B C D E
R3214	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R3215	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R3216	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R3217	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R3218	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	C D E
R3219	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	C D E
R3220	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W	C D E
R3223	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R3224	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R3225	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R3229	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W	A B C D E
R3230	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C D E
R3232	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B
R3235	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R3236	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R3237	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R3244	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R3245	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R3246	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R3247	NRSA02J-681X	MG RESISTOR	680Ω,1/10W	A B
R3248	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R3249	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	A B
R3250	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A B
R3253	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R4001	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A B C D E
R4002	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W	A B C D E
R4003	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R4010	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C D E
R4011	NRSA02J-471X	MG RESISTOR	470Ω1/10W	A B C D E
R4012	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W	A B C D E
R4018	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C D E
R4019	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C D E
R5101	QRE141J-224Y	C RESISTOR	220kΩ,1/4W	A B C D E
R5102	QRE141J-224Y	C RESISTOR	220kΩ,1/4W	A B C D E
R5103	QRE141J-683Y	C RESISTOR	68kΩ,1/4W	A B C D E
R5104	QRG02GJ-683	OMF RESISTOR	68kΩ,2W	A B C D E
R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω,1W	A B C D E
R5107	QRE121J-331Y	C RESISTOR	330Ω,1/2W	A B C D E
R5108	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W	A B C D E
R5109	QRE141J-561Y	C RESISTOR	560Ω,1/4W	A B C D E
R5110	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W	A B C D E
R5111	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C D E
R5112	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A B C D E
R5302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C D E
R5303	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A B C D E
R5304	QRE141J-471Y	C RESISTOR	470Ω,1/4W	A B C D E
R5306	NRSA02J-181X	MG RESISTOR	180Ω,1/10W	A B C D E
R5310	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R5312	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C D E
R5313	NRSA02J-821X	MG RESISTOR	820Ω,1/10W	A B C D E
R5319	NRSA02J-221X	MG RESISTOR	220Ω,1/10W	A B C D E
R5332	QRE121J-391Y	C RESISTOR	390Ω,1/2W	A B C D E
R6020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	C D E
R6021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	C D E
R6030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	C D E

MODEL	MARK	MODEL	MARK
HR-P57AG	A	HR-V207AG	D
HR-P58AG	B	HR-V400AG	E
HR-V200AG	C		

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION		A B C D E
R6031	NRSA02J-271X	MG RESISTOR	270Ω,1/10W	C D E
R6032	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	C D E
R6033	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	C D E
R6050	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B
R6050	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	C D E
R6051	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C D E
R6052	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C D E
R6056	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	A B
R6056	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	C D E
R7002	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	C D E
R7003	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	A B C D E
R7004	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	A B C D E
R7005	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	C D E
R7006	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	C D E
R7007	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	C D E
R7008	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	C D E
R7015	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W	A B C D E
R7020	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R7021	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A B C D E
R7022	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	A B C D E
R7023	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A B C D E
R7024	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W	A B C D E
R7025	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W	A B C D E
R7026	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W	A B C D E
R7030	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W	A B C D E
R7031	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W	A B C D E
R7032	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W	A B C D E
R7033	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W	A B C D E
R7121	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A B C D E
R7122	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R7131	NRSA02J-101X	MG RESISTOR	100Ω,1/10W	A B C D E
R7132	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R7133	QRE141J-331Y	C RESISTOR	330Ω,1/4W	A B C D E
R7134	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R7151	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	A B C D E
R7152	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
R7160	NRSA02J-331X	MG RESISTOR	330Ω,1/10W	E
R7163	NRSA02J-750X	MG RESISTOR	75Ω,1/10W	E
B1	NRSA02J-0R0X	MG RESISTOR,V OUT(V)	0Ω,1/10W	A B C D E
B4	NRSA02J-0R0X	MG RESISTOR,FSC	0Ω,1/10W	A B C D E
B7	NRSA02J-0R0X	MG RESISTOR,2FSC BUFF	0Ω,1/10W	A B C D E
B9	NRSA02J-0R0X	MG RESISTOR,SEC PB C	0Ω,1/10W	D
B10	NRSA02J-0R0X	MG RESISTOR,EE L	0Ω,1/10W	D
B201	NRSA02J-0R0X	MG RESISTOR,FSC IN	0Ω,1/10W	A B C D E
B2001	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
B2004	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
B3001	NRSA02J-0R0X	MG RESISTOR,AL5V	0Ω,1/10W	A B
B5001	QUY160-100Y	IM BUS WIRE		A B C D E
B5002	QUY160-100Y	IM BUS WIRE		A B C D E
B6051	NRSA02J-0R0X	MG RESISTOR,RF5V	0Ω,1/10W	A B C D E
B6052	NRSA02J-0R0X	MG RESISTOR,RF5V	0Ω,1/10W	C D E
B6053	NRSA02J-0R0X	MG RESISTOR,TU30V	0Ω,1/10W	C D E
B6054	NRSA02J-0R0X	MG RESISTOR,RF5V	0Ω,1/10W	A B
B6056	QUY160-120Y	IM BUS WIRE,TU30V		A B
B7002	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B
B7102	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
B7105	QUY160-100Y	IM BUS WIRE		A B C D E
B7108	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
B7110	NRSA02J-0R0X	MG RESISTOR,VCP(MONO)	0Ω,1/10W	A B C D E
B7112	NRSA02J-0R0X	MG RESISTOR,VCP(MONO)	0Ω,1/10W	A B C D E
B7113	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
B7114	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
C1	NDC21HJ-151X	C CAPACITOR	150pF,50V	A B C D E
C2	NDC21HJ-470X	C CAPACITOR	47pF,50V	A B C D E
C3	NDC21HJ-7R0X	C CAPACITOR	7pF,50V	D
C4	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A B C D E
C5	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C6	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C7	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C8	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A B C D E
C9	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	A B C D E
C10	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A B C D E
C11	QEPF1HM-105Z	BP E CAPACITOR	1µF,50V	A B C D E
C13	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	E
C14	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A B C D E
C15	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C17	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C19	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C20	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C22	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C24	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C25	QEKJ1HM-335Z	E CAPACITOR	3.3µF,50V	A B C D E
C26	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A B C D E
C27	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C29	NCB21HK-103X	C CAPACITOR	0.01µF,50V	D
C30	NCB21HK-331X	C CAPACITOR	330pF,50V	A B C D E
C31	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A B C D E
C32	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C33	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A B C D E
C34	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C35	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C36	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A B C D E
C37	NDC21HJ-2R0X	C CAPACITOR	2pF,50V	A B C D E
C38	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C39	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A B C D E
C40	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C41	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C43	QEKJ1HM-335Z	E CAPACITOR	3.3µF,50V	A B C D E
C44	QEKJ1HM-225Z	E CAPACITOR	2.2µF,50V	A B C D E
C45	NCB21HK-472X	C CAPACITOR	0.0047µF,50V	A B C D E
C46	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C47	QEKJ1HM-474Z	E CAPACITOR	0.47µF,50V	A B C D E
C48	NCB21EK-223X	C CAPACITOR	0.022µF,25V	A B C D E
C49	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A B C D E
C55	NDC21HJ-151X	C CAPACITOR	150pF,50V	A B C D E
C56	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C57	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C58	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C59	NCB21HK-103X	C CAPACITOR	0.01µF,50V	E
C60	NCB21HK-103X	C CAPACITOR	0.01µF,50V	E
C61	QEKC0JM-476Z	E CAPACITOR	47µF,6.3V	A B C D E
C62	QCBB1HK-103Y	C CAPACITOR	0.01µF,50V	A B C D E
C63	NCB21HK-103X	C CAPACITOR	0.01µF,50V	E
C64	QCBB1HK-103Y	C CAPACITOR	0.01µF,50V	E
C71	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A B C D E
C75	NDC21HJ-390X	C CAPACITOR	39pF,50V	D
C201	QERF0JM-476Z	E CAPACITOR	47µF,6.3V	A B C D E
C202	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C203	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A B C D E
C205	NDC21HJ-101X	C CAPACITOR	100pF,50V	A B C D E
C207	NCF21CZ-105X	C CAPACITOR	1µF,16V	A B C D E
C209	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E

MODEL	MARK	MODEL	MARK
HR-P57AG	A	HR-V207AG	D
HR-P58AG	B	HR-V400AG	E
HR-V200AG	C		

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION		A B C D E
C211	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C212	NDC21HJ-271X	C CAPACITOR	270pF,50V	A B C D E
C2001	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A B C D E
C2002	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A B C D E
C2003	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A B C D E
C2004	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C2005	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A B C D E
C2006	NCB21HK-682X	C CAPACITOR	0.0068µF,50V	A B C D E
C2007	QEKJ1CM-226Z	E CAPACITOR	22µF,16V	A B C D E
C2008	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A B C D E
C2009	NCB21HK-821X	C CAPACITOR	820pF,50V	A B C D E
C2010	NCB21HK-152X	C CAPACITOR	0.0015µF,50V	A B C D E
C2011	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A B C D E
C2012	QEKC1HM-475Z	E CAPACITOR	4.7µF,50V	A B C D E
C2051	NCB21HK-331X	C CAPACITOR	330pF,50V	A B C D E
C2052	QFLC1HJ-823Z	M CAPACITOR	0.082µF,50V	A B C D E
C2053	NCB21HK-472X	C CAPACITOR	0.0047µF,50V	A B C D E
C2054	NCB21EK-223X	C CAPACITOR	0.022µF,25V	A B C D E
C2055	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	A B C D E
C3011	QETL0JM-338	E CAPACITOR	3300µF,6.3V	C D E
C3022	NCB21HJ-103X	C CAPACITOR	0.01µF,50V	A B C D E
C3023	NCF21CZ-105X	C CAPACITOR	1µF,16V	A B C D E
C3024	NDC21HJ-120X	C CAPACITOR	12pF,50V	C D E
C3030	QERF0JM-107Z	E CAPACITOR	100µF,6.3V	A B
C3031	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A B C D E
C3036	NDC21HJ-220X	C CAPACITOR	22pF,50V	A B C D E
C3037	NDC21HJ-180X	C CAPACITOR	18pF,50V	A B C D E
C3042	QAT3725-300Z	TRIM CAPACITOR		C D E
C3045	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C3051	NCF21EZ-104X	C CAPACITOR	0.1µF,25V	A B C D E
C3052	QEKJ1EM-106Z	E CAPACITOR	10µF,25V	C D E
C3054	NCB21HJ-103X	C CAPACITOR	0.01µF,50V	A B C D E
C3056	QEKJ1HM-475Z	E CAPACITOR	4.7µF,25V	A B C D E
C3071	QEKJ1CM-336Z	E CAPACITOR	33µF,16V	A B C D E
C3078	NCB21HK-102X	C CAPACITOR	0.001µF,50V	C D E
C4001	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C4002	QERF1HM-105Z	E CAPACITOR	1µF,50V	A B C D E
C4004	QERF1AM-336Z	E CAPACITOR	33µF,10V	A B C D E
C4006	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W	A B C D E
C4007	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C4009	NCB21HK-102X	C CAPACITOR	0.001µF,50V	A B C D E
C4010	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A B C D E
C4011	NCB21CK-224X	C CAPACITOR	0.22µF,16V	A B C D E
C4013	NCB21EK-104X	C CAPACITOR	0.1µF,25V	A B C D E
C4014	NDC21HJ-101X	C CAPACITOR	100pF,50V	A B C D E
C4019	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
⚠ C5001	QFZ9072-473	MM CAPACITOR	0.047µF,125V	A B C D E
⚠ C5004	QCZ9071-222	C CAPACITOR	0.0022µF,250V	A B C D E
C5006	QEZ0375-686	E CAPACITOR	68µF,400V	A B C D E
C5101	QCZ0212-472	C CAPACITOR	0.0047µF,1kV	A B C D E
C5102	QCZ0339-101Z	C CAPACITOR	100pF,1kV	A B C D E
C5104	QEKJ1HM-105Z	E CAPACITOR	1µF,50V	A B C D E
C5105	QFN31HJ-183Z	M CAPACITOR	0.018µF,50V	A B C D E
C5106	QCBB1HJ-271Y	C CAPACITOR	270pF,50V	A B C D E
C5107	QFV91HJ-104Z	MF CAPACITOR	0.1µF,50V	A B C D E
C5202	QETN1CM-108Z	E CAPACITOR	1000µF,16V	A B C D E
C5203	QEMT1AM-128	E CAPACITOR	1200µF,10V	A B C D E
C5204	QETJ2AM-475Z	E CAPACITOR	4.7µF,10V	A B C D E
C5206	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	A B C D E
C5207	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	A B C D E
C5301	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	A B C D E
C5303	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	A B C D E
C5305	QFVF1HJ-274Z	MF CAPACITOR	0.27µF,50V	A B C D E
C5307	QEKJ1CM-476Z	E CAPACITOR	47µF,16V	A B C D E
C5308	QEKJ1CM-107Z	E CAPACITOR	100µF,16V	A B C D E
C6006	NCB21HK-103X	C CAPACITOR	0.01µF,50V	C D E
C6008	NCB21HK-103X	C CAPACITOR	0.01µF,50V	C D E
C6013	NCB21HK-153X	C CAPACITOR	0.015µF,50V	A B
C6013	NCB21HK-103X	C CAPACITOR	0.01µF,50V	C D E
C6014	NCB21HK-103X	C CAPACITOR	0.01µF,50V	C D E
C6016	NCB21HK-103X	C CAPACITOR	0.01µF,50V	C D E
C6032	NCB21EK-473X	C CAPACITOR	0.047µF,25V	C D E
C6037	QEKJ1HM-106Z	E CAPACITOR	10µF,50V	C D E
C7011	QEKJ0JM-476Z	E CAPACITOR	47µF,6.3V	A B C D E
C7114	QETN0JM-477Z	E CAPACITOR	470µF,16V	A B C D E
C7119	NCB21HK-681X	C CAPACITOR	680pF,50V	A B C D E
C7128	QEKJ0JM-107Z	E CAPACITOR	100µF,6.3V	A B C D E
C7133	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
C7164	NCB21HK-681X	C CAPACITOR	680pF,50V	E
C7197	NCB21HK-103X	C CAPACITOR	0.01µF,50V	A B C D E
L1	QUY153-050Y	IM BUS WIRE		A B C D E
L2	QQL071J-221Y	INDUCTOR	220µH	D
L3	QQL29BJ-100Z	P COIL	10µH	A B C D E
L5	QQL29BJ-100Z	P COIL	10µH	A B C D E
L6	QQL29BJ-100Z	P COIL	10µH	A B C D E
L10	QQL29BJ-100Z	P COIL	10µH	A B C D E
L14	QQL071J-101Y	INDUCTOR	100µH	D
L15	QQL01BJ-120Z	P COIL	12µH	A B C D E
L201	QQL29BJ-100Z	P COIL	10µH	A B C D E
L203	QQL231J-4R7Y	INDUCTOR	4.7µH	A B C D E
L204	QUY153-050Y	IM BUS WIRE		A B C D E
L2001	QUY153-050Y	IM BUS WIRE		A B C D E
L4001	QQL231J-1R0Y	INDUCTOR	1.0µH	A B C D E
L5201	PELN1184	CHOKE COIL	33µH	A B C D E
L5202	PELN1184	CHOKE COIL	33µH	A B C D E
L6001	QQL29BK-1R0Z	P COIL	1.0µH	C D E
L6002	QUY153-050Y	IM BUS WIRE		A B
L6002	QQL29BK-1R0Z	P COIL	1.0µH	C D E
L7107	QQL29BJ-100Z	P COIL	10µH	A B C D E
L7113	QUY153-050Y	IM BUS WIRE		A B C D E
⚠ CP3002	NMFZ012-1R0X-M	FUSE,CAP.M VCC	T1.0A,50V	A B C D E
⚠ CP4002	NMFZ012-1R0X-M	FUSE	T1.0A,50V	A B C D E
DI7001	LTG-Y2K16M-02J	LED,4 DIG LED		C D E
FC5001	QNG0006-001Z	FUSE CLIP,FOR F5001		A B C D E
FC5002	QNG0006-001Z	FUSE CLIP,FOR F5001		A B C D E
J7103	QNN0292-002	PIN JACK,REAR OUT		A B C D E
J7104	QNN0292-002	PIN JACK,REAR IN		A B C D E
J7105	QNN0382-002	PIN JACK,FRONT IN		E
JS3001	QSW0954-003	ROTARY ENCODER		A B C D E
K5101	QQR0678-001Z	FERRITE BEADS		A B C D E
K5102	QUY153-050Y	IM BUS WIRE		A B C D E
⚠ LF5002	QQR0978-001	LINE FILTER		A B C D E
PC3001	RPI-304J	IC(PHOTO SENSOR),SP REEL		A B C D E
PC3002	RPI-304J	IC(PHOTO SENSOR),TU REEL		A B C D E
⚠ PC5101	PC123Y22	IC(PHOTO COUPLER)		A B C D E
S3001	QSW0602-004	PUSH SWITCH,R.SAFE SW		A B C D E
S7002	QSW0456-002Z	TACT SWITCH,POWER		A B C D E
S7003	QSW0456-002Z	TACT SWITCH,COLOR SYS/PR-		A B C D E
S7006	QSW0456-002Z	TACT SWITCH,REW		A B C D E
S7008	QSW0456-002Z	TACT SWITCH,FWD		A B C D E
S7010	QSW0456-002Z	TACT SWITCH,REC		A B C D E
S7011	QSW0456-002Z	TACT SWITCH,STOP/EJ		A B C D E

MODEL	MARK	MODEL	MARK
HR-P57AG	A	HR-V207AG	D
HR-P58AG	B	HR-V400AG	E
HR-V200AG	C		

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION		A B C D E
	S7013	QSW0456-002Z	TACT SWITCH,PLAY	A B C D E
	S7017	QSW0456-002Z	TACT SWITCH,SP/LP/EP/PR+	A B C D E
	T2051	PELN0832	OSC TRANS	A B C D E
⚠	T5001	QQS0186-001	SW TRANSF	A B C D E
	TP106	QUY160-060Y	IM BUS WIRE,PB FM	A B C D E
	TP111	QUY160-060Y	IM BUS WIRE,D.FF	A B C D E
	TP4001	QUY160-060Y	IM BUS WIRE,CTL.P	A B C D E
	TU6001	QAU0330-001	RF CONVERTER	A B
	TU6001	QAU0261-002	TUNER	C D E
	X1	QAX0740-001	CRYSTAL,PAL 4.433619MHz	A B C D E
	X2	QAX0739-001	CRYSTAL,NTSC 3.579545MHz	A B C D E
	X3001	QAX0728-001	CRYSTAL 14.318180MHz	A B C D E
	X3002	QAX0444-001	CRYSTAL 32.768kHz	C D E
	SD1	LP21105-002A	SHIELD CASE,PRE-REC	A B C D E
⚠	TB1	PQ21977-21	TERMINAL BOARD,TERM.BOARD	A B
⚠	TB1	PQ21977-17-3	TERMINAL BOARD,TERM.BOARD	C D E
	ET1	LP30859-001A	EARTH PLATE,RF EARTH	A B
	ET1	PQ21623-2-5	EARTH PLATE(RF),RF EARTH	C D E
	HS1	LP40090-001A	HEAT SINK,FOR Q5101	A B C D E
	OT1	QYTDST3006Z	TAP SCREW,FOR Q5101	A B C D E
	OT2	QYSDST3006M	TAP SCREW,T.BOARD	A B
	OT3	LP31260-001A	LED HOLDER,LED HOLDER	A B
	CN1	QGF1201C2-06	FPC CONNECTOR,2/4HEAD 6PIN	A B C D E
	CN2	LPA10011-03A	SECAM PWB ASSY,SECAM	D
	CN2001	QGF1207C1-06	FPC CONNECTOR,A/C HEAD	A B C D E
	CN2002	QGB2532J1-02	B TO B CONNECTOR,FE HEAD	A B C D E
	CN3001	QGB2032M4-12	B TO B CONNECTOR,CAP+DRUM M	A B C D E
⚠	CN5001	QGA7901C3-02	W TO B CONNECTOR,POWER CORD	A B C D E
	CN7004	QGB2530J1-03	B TO B CONNECTOR,PIN 3 TO 5	A B
	CN7005	QGB2530K1-03	B TO B CONNECTOR,PIN 3 TO 5	A B
⚠	F5001	QMF51E2-2R0-J1	FUSE T2.0A,AC250V	A B C D E

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A/C HEAD BOARD ASSEMBLY <12>

PW1	LPA10158-01A1	A/C HEAD BOARD ASSY	A B C D E

****

LOADING MOTOR BOARD ASSEMBLY <55>

PW2	LPA10158-01A2	LOADING MOTOR BOARD ASSY	A B C D E

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SECAM BOARD ASSEMBLY <88> [FOR HR-V207AG]

PW1		LPA10011-03A	SECAM BOARD ASSY,V16 D1EF	D
IC301		LA7358	IC	D
Q301		2SB1218A/QR/-X	TRANSISTOR	D
Q301	or	2SA1576A/QR/-X	TRANSISTOR	D
Q301	or	2PA1576/R/-X	TRANSISTOR	D
Q302		UN511E-X	DIGI TRANSISTOR	D
Q302	or	DTA144WUA-X	DIGI TRANSISTOR	D
Q302	or	RN2309-X	D TRANSISTOR	D
Q302	or	PDTA144WU-X	DIGI TRANSISTOR	D
R301		NRSA02J-273X	MG RESISTOR 27kΩ,1/10W	D
R302		NRSA02J-124X	MG RESISTOR 120kΩ,1/10W	D
R303		NRSA02J-273X	MG RESISTOR 27kΩ,1/10W	D
R304		NRSA02J-682X	MG RESISTOR 6.8kΩ,1/10W	D

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION		A B C D E
R305		NRSA02J-473X	MG RESISTOR 47kΩ,1/10W	D
R306		NRSA02J-273X	MG RESISTOR 27kΩ,1/10W	D
R307		NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W	D
R308		NRSA02J-222X	MG RESISTOR 2.2kΩ,1/10W	D
R309		NRSA02J-821X	MG RESISTOR 820Ω,1/10W	D
R310		NRSA02J-223X	MG RESISTOR 22kΩ,1/10W	D
R311		NRSA02J-392X	MG RESISTOR 3.9kΩ,1/10W	D
R312		NRSA02J-272X	MG RESISTOR 2.7kΩ,1/10W	D
R313		NRSA02J-223X	MG RESISTOR 22kΩ,1/10W	D
R314		QRE141J-243Y	C RESISTOR 24kΩ,1/4W	D
R315		QRE141J-564Y	C RESISTOR 560kΩ,1/4W	D
R316		QRE141J-224Y	C RESISTOR 220kΩ,1/4W	D
R329		NRSA02J-0R0X	MG RESISTOR 0Ω,1/10W	D
C301		NDC21HJ-151X	C CAPACITOR 150pF,50V	D
C302		QEKC1HM-225Z	E CAPACITOR 2.2µF,50V	D
C303		NCB21HK-682X	C CAPACITOR 0.0068µF,50V	D
C304		NCB21HK-682X	C CAPACITOR 0.0068µF,50V	D
C305		NCB21HK-103X	C CAPACITOR 0.01µF,50V	D
C307		NDC21HJ-151X	C CAPACITOR 150pF,50V	D
C308		NCB21HK-103X	C CAPACITOR 0.01µF,50V	D
C309		NCB21EK-104X	C CAPACITOR 0.1µF,25V	D
C310		NCB21HK-103X	C CAPACITOR 0.01µF,50V	D
C311		NCB21HK-103X	C CAPACITOR 0.01µF,50V	D
C312		NCB21HK-102X	C CAPACITOR 0.001µF,50V	D
C313		QEKC1HM-474Z	E CAPACITOR 0.47µF,50V	D
C314		NDC21HJ-471X	C CAPACITOR 470pF,50V	D
C315		QEKC1EM-106Z	E CAPACITOR 10µF,25V	D
C316		NCB21HK-103X	C CAPACITOR 0.01µF,50V	D
C317		NCB21HK-681X	C CAPACITOR 680pF,50V	D
C318		NCB21EK-223X	C CAPACITOR 0.022µF,25V	D
C319		QEKC1HM-105Z	E CAPACITOR 1µF,50V	D
C320		QDYB1CM-103Y	C CAPACITOR 0.01µF,16V	D
C321		NDC21HG-301X	C CAPACITOR 300pF,50V	D
C322		NCB21CK-474X	C CAPACITOR 0.47µF,16V	D
C323		QEKC0JM-476Z	E CAPACITOR 47µF,6.3V	D
L301		QQL29BJ-100Z	P COIL 10µH	D
L302		QQL29BJ-6R8Z	P COIL 6.8µH	D
L303		QQL071J-270Y	INDUCTOR 27µH	D
BK1		LP40425-001A	BRACKET(PWB)	D
CN301		QGG2502K1-11	HEADER PIN	D